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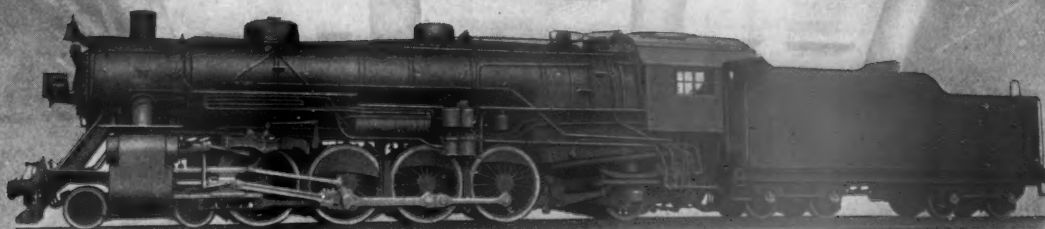
Railway Age

FIRST HALF OF 1921—NO. 5

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SIXTY-SIXTH YEAR

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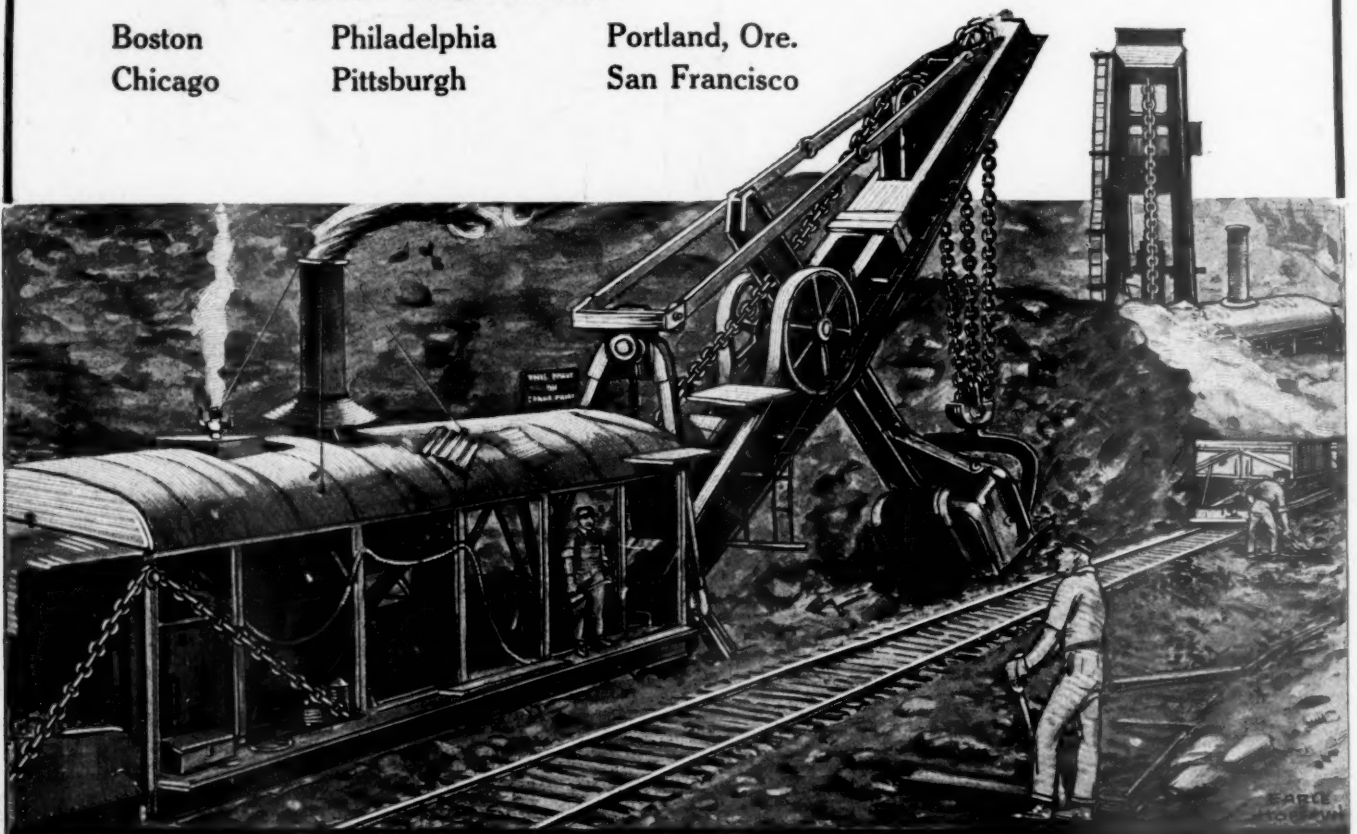
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EDITORIAL

Railway Age

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In considering plans for reductions in wage scales the railroads should consider very carefully before making any drastic reductions in the rates paid to the foremen of the maintenance of way department. Owing to the isolation of these men along the line, they are placed on their own resources

Take Care of the Foreman

much more than the men holding corresponding positions in the other departments. It is physically impossible for the supervisor to observe their work in detail more than a few minutes each day or two. Consequently, the efficiency and effectiveness of the work performed under the direction of these foremen depends to a greater extent on their qualities of leadership, individual responsibility, industry and intelligence, than is the case with men who are almost constantly under the eye of the supervisory officer. That the railroads have experienced trouble in obtaining an adequate supply of track foremen with qualifications measuring up to these requirements is evidenced by frequent reference to this subject at meetings of the supervisors. There has been too great a contrast between the section foremen of the past, who commanded the respect of all railway employees, excited the ambition of the young men of communities along the line, and the section foremen of the present whose sons aspire to go "braking" or "firing" rather than to follow the footsteps of their father. Advances in rates to these men during the past three years have served to improve this situation. Therefore any adjustment of the scales of compensation now under consideration should be made in such a way as to leave the position of section foreman one that is sufficiently attractive to draw to it men of sufficient calibre to meet the growing responsibilities imposed.

What has happened to the freight traffic of the railways is strikingly indicated by statistics regarding the loading of freight cars within recent weeks. In

Tremendous Decline of Freight

October the number of carloads of freight loaded averaged about one million a week. In the four weeks ending January 22 the average number of cars loaded weekly was 679,551. This represents a decline since the peak was reached in October of almost exactly one-third. As a result of this decline of business the railways on January 23 had a car surplus of 301,000 cars and this has been steadily increasing. The statistics regarding earnings and expenses in January are not available but the reduction of both total and net earnings which occurred coincidentally with this decline of one-third in freight movement will be shown when the statistics are available to have been very large. The statistics regarding car loadings show clearly that the country is not very generally taking advantage of the surplus railway capacity available to "ship now." For a period of many months there were loud complaints that shippers could not get sufficient cars in which to ship their goods. The railways might now with equal pertinence complain loudly that they cannot get enough freight with which to load their cars. Car shortages cause heavy losses to the business concerns that cannot ship goods when they want to, but car surpluses likewise cause heavy losses to railways when they cannot get freight to haul in their cars.

When there is another large shortage of cars, as in course of time there will be, it is to be hoped that those who could cause the shipment of freight now, but who are not doing so because prices or other conditions are unsatisfactory to them, will not forget the present period during which the railways are suffering tremendous losses because of the failure of those who could "ship now" to do so.

A substantial majority of maintenance officers are inclined to consider a maintenance cost and work system, including

Proof of the Pudding in the Eating

diagrammatical or charted representation, too complicated and difficult to keep up to date and, therefore, of little value. The truth is that the subject has not been studied sufficiently. While one plan in all its details will not fit all the conditions on all roads, the underlying principle of the plan is entirely applicable in nine cases out of ten. It is not strange that some maintenance officers consider not only complicated but even unwieldy the comprehensive plan which one road has worked out and put into operation. Yet if the plan has proved successful, it is good proof that the fault is not in the system itself. One large eastern road now has in successful use a method whereby an accurate check is kept on the progress of its foremen, supervisors and division engineers by means of charts made up by the foremen and supervisors and consolidated by the division engineer. These are forwarded at regular intervals to the engineer maintenance of way, who is thus able to know accurately just what has been done on the track, what is being done and what is the best future sequence for the work. The office charts are then brought up to date and the original returned with the comment, criticism or instructions. The time actually consumed is small, for the men concerned are thoroughly familiar with the method and the changes or additions are made promptly. It is the experience on this road that the objections as to complication and time lost are of little importance—the time wasted in searching out and co-ordinating the data for one item or one detail of the work is usually sufficient to keep an entire system to standard for a month. The problem hinges entirely upon the development of a method which is sufficiently simple, comprehensive and applicable, a condition not always easy to meet but certainly worth the effort.

In last week's issue of the *Railway Age* there was some brief comment concerning the hearings before the Interstate Commerce Commission on the application

Feasibility of No Par Value

of the El Paso & Southwestern Company to issue stock of no par value. No attempt was made to discuss the feasibility of the idea. Voice was given to the expectation, however, that the proposal would attract no small amount of attention. It would appear that the idea of issuing of stock without "par value" has much merit. It would take a four-page article to discuss the advantages and disadvantages in detail and it is intended here to discuss but one small angle of the problem. One of the major faults in railway financing in recent years has been the predominance of bonded indebtedness as compared with the raising

of capital through issues of stock. The opinion has been expressed that the working out of the provisions of the Transportation Act may encourage this tendency, particular reference being made to the manner in which the Interstate Commerce Commission has assisted carriers in meeting maturing indebtedness by means of the \$300,000,000 loan fund. Of course, there can be no criticism of such a commendable use of the revolving fund as that. The difficulty is the lack of ability to use stock issues more than they have been used in recent years. Not the least of the difficulties attendant upon the issuance of stock is the fact that it is hardly feasible to put out such issues at less than par value. This is an objection that does not hold in the case of stock of no par value. Having no par value issues of it may be made at or near the current market value. The argument therefore is that having stock of no par value will permit of raising capital through stock issues where it possibly could not be raised with stock with a par value. The question is not one, of course, that can be decided easily. Nevertheless, it will be borne in mind that one of the chief objections—namely that of inflation—has been removed by the provisions of the Transportation Act giving control over security issues to the Interstate Commerce Commission.

In reducing the personnel under present conditions, mechanical department officers are confronted with a serious dilemma.

**Discrimination
Needed in
Reducing Forces**

The amount of work in the average terminal does not fall off in proportion to the decrease in traffic and with the present restrictions on the work of the various crafts, a heavy cut in roundhouse forces will often make it impossible to handle the work properly. On the other hand, the proportion of equipment in need of repairs is very large and the shops should be turning out more locomotives and cars than are needed to care for the present traffic in order to be prepared for an increase in business. The situation calls for sound judgment and the mechanical officer should be left free to keep the proper balance between the two branches of the department. When a situation arises, such as exists at present, there is too often a tendency to reduce the roundhouse forces beyond the economical limit. The operating officer has no accurate index of the results being obtained by the mechanical department and nearly always attaches too much importance to the equipment condition report. If the per cent of bad-order equipment is given undue weight, the shop work is likely to receive more attention than the handling of engines in the terminal. The true function of the mechanical department is not merely to repair equipment. The maintenance of the locomotive at the terminal has a marked effect on its efficiency as an operating machine. There are many large expenses incident to conducting transportation over which the operating department has no control; they are determined entirely by the character of the maintenance of the equipment. Whatever reductions are made in the mechanical department, the roundhouse forces should not be reduced to such an extent that the efficiency of the motive power as an operating machine is impaired. The hidden losses due to poor maintenance may be in many cases greater than the savings made by laying off men. Regardless of the extent to which expenses must be cut, enough men should be kept at the terminals to see that every important part of the locomotive is kept in efficient condition, that boiler tubes and superheaters are cleaned and tight, that the valves are square, that there are no bad pounds in the machinery and no leaks to waste steam. These are absolute essentials that should receive attention even before consideration is given to reducing the number of bad-order locomotives and cars.

It is to be presumed that the Interstate Commerce Commission now has under consideration the decision it will be called upon to make eventually as to the working out of the so-called recapture clause of the Transportation Act. This term is given to the provision relating to the treatment of excess net railway operating income over 6 per cent. It is contained in paragraph 6 of section 15a of the Interstate Commerce Act, or of section 422 of the Transportation Act, and reads in part as follows:

The Recapture Clause

(6) If, under the provisions of this section, any carrier receives for any year a net railway operating income in excess of 6 per centum of the value of the railway property held for and used by it in the service of transportation, one-half of such excess shall be placed in a reserve fund established and maintained by such carrier, and the remaining one-half thereof shall, within the first four months following the close of the period for which such computation is made, be recoverable by and paid to the commission for the purpose of establishing and maintaining a general railroad contingent fund as hereinafter described.

There are many problems which may be expected to arise in the administration of these provisions. One of them is the term to which the clause is to be made to apply. The commission may apparently in its discretion choose the year from September 1, 1920, to August 31, 1921, or it may find it more advisable to take the four months from September 1, 1920, to December 31, 1920, and henceforth to follow the regular calendar and fiscal year. It is certainly to be hoped that it will adopt the latter method. For one thing it will be somewhat confusing and certainly uneconomical to have an overlapping period as would be the case if the September 1 to August 30 period is taken. That it would certainly be much better to have a single accounting period is self-evident. Other questions will arise, no doubt, as to the working out of the clause. It would appear to be most advisable to have them settled at once and not dragged over for nearly another additional eight months or a year. There will be enough uncertainties in the railway business in 1921 without including this particular problem among them.

Will the Labor Board Rise to the Emergency?

THE LABOR COMMITTEE of the Association of Railway Executives, speaking through its chairman, General W. W. Atterbury of the Pennsylvania Railroad, suggested to the Railroad Labor Board on Monday that to meet a great emergency it should set aside at once all rules and working conditions imposed upon the railways since December 31, 1917.

The emergency to meet which it was suggested that this be done is that presented by the present financial condition of the railroads. In the first three months during which the present freight and passenger rates were in effect the railroads handled a record-breaking business. Nevertheless, in these months they earned a net return at the rate of four per cent, and not of six per cent, as estimated by the Interstate Commerce Commission.

Since then there has been a tremendous decline of traffic. The amount of freight being moved has declined one-third since October, and the number of idle freight cars on January 3 was 301,000. This contrasts with a car shortage of about 140,000 cars on September 1.

With earnings inadequate when the traffic was large, and with traffic and earnings declining at the rate these figures indicate, it is idle for spokesmen of railway employees' organizations to answer, as some have, that there is no crisis in the railroad field demanding immediate attention.

The railroad payroll constitutes 60 per cent of railroad earnings. Economies in the use of and in the prices paid for materials and fuel are by no means exhausted, but are

being made energetically every day. But all the other economies that could be effected on many railroads would not save them from disaster under present conditions without a sharp reduction in their payrolls. Many men already have been laid off, but very little study of the statistics regarding current earnings and expenses is necessary to show that all the economies made are not sufficient. The managers of the railways are, therefore, confronted with the indubitable fact that one of the three following developments must occur:

First: A great increase in the efficiency of employees and a consequent reduction in the number of them to be paid without any general reduction of wages;

Second: A general reduction of wages;

Third: Many railroad bankruptcies.

The railway executives' obligations, not merely to their security owners, but to the public, forbade them to sit by and watch the enormous payroll drive many railroads into bankruptcy. Many hundreds of millions of dollars of the securities of railroads are owned by savings and other banks, by life insurance and other similar fiduciary institutions. Widespread insolvency of the railroads would largely destroy the value of these securities and pull down many of the banks and other institutions which own them. The probable result would be a financial panic and a serious deepening and prolongation of the business depression from which the country already is suffering so greatly.

It was not deemed desirable to demand a general reduction of wages at this time, although the fact that ultimately a reduction of railway wages must come was clearly recognized in General Atterbury's statement.

The only way out left was that suggested to the Railroad Labor Board, namely, the setting aside of the many restrictive rules and working conditions adopted under government control which have been making efficient and economical operation of the railways impossible.

It has been charged that the suggestion made to the Labor Board that it immediately approve the setting aside of all rules and working conditions established since December 31, 1917, was an irregular proceeding and practically asked the Railroad Labor Board to disregard the law which created it. As a matter of fact, the continuance since September 1 of these rules and working conditions has been irregular and not required by the Transportation Act. The Transportation Act specifically required the railroads to continue these rules and working conditions in effect until September 1. Any and every railroad in the country could have legally discontinued them on that date.

Why was this not done? Because the Railroad Labor Board in its decision in the wage case last July asked that the rules and working conditions established under government control should be continued until hearings regarding them could be held. It was because of this request of the Board that they have been kept in effect up to the present time. The Board has exactly the same right to ask the employees at this time to return to the rules and working conditions of December 31, 1917, that it had last July to ask the companies to continue to observe the rules and working conditions established under government control.

What would have happened if on September 1 the companies had restored the rules and working conditions of 1917? The employees undoubtedly would have strenuously objected. If developments had then taken the course obviously contemplated by the Transportation Act, negotiations regarding the matter would have been carried on by representatives of the companies and the employees. If these negotiations had developed into a controversy which threatened to cause an interruption of transportation, it would have been necessary in order to comply with the Transportation Act to have submitted the controversy to the Railroad Labor Board. Meantime, however, the rules and working

conditions of 1917 would have been in effect. The law does not give the Railroad Labor Board actual jurisdiction over any question arising between a railway and its employees until there have been negotiations between them regarding these questions out of which negotiations there has developed a controversy which might lead to an interruption of transportation.

If the Board should now approve the suggestion made by the Labor Committee, it would in effect be merely asking the employees to accept these rules and working conditions of 1917, as last July it asked the railway companies to continue to operate under the rules and working conditions established by the Railroad Administration. Its action in respect to this matter now, like its action in respect to the same matter last July, would be extra-legal. Perhaps the result would be a controversy which would threaten an interruption of transportation. In that event, the whole question would have to be brought before the Board again, but meantime the rules and working conditions in effect would be those of 1917.

Altogether aside from the legal aspects of the questions involved, what the railways have really presented to the Labor Board and the employees is the alternative of a reduction in railroad expenses by a restoration of the rules and working conditions of 1917 or by a general reduction of wages. The restoration of the rules and working conditions of 1917 would enable the railways to make large savings by reducing the number of men they employ, and by eliminating the payment of many millions of dollars a year for work that is not done. If this plan is not adopted, a general reduction of wages will have to be speedily made. The plan the companies have offered would be better in the long run for the companies, the public and the employees than the general and sharp reduction of wages which is the only alternative.

The *Railway Age* repeatedly has pointed out to railroad labor leaders that the only way railway employees could hope to establish a claim to a continuance of the present high wages is by increased efficiency in their work. The labor leaders have done nothing to stimulate increased efficiency of work by the employees. They have devoted themselves to trying to perpetuate rules and conditions of work which make efficiency and economy in operation impossible, and which, by making it impossible, have been rapidly making impossible a continuance of the present scale of wages. The result is the deplorable condition which now exists in the railroad field. Unless the Labor Board promptly approves either drastic changes in working conditions or a sharp reduction of wages it will have to assume a heavy responsibility for very serious consequences.

New Books

The Engineering Index for 1919. Published by the American Society of Mechanical Engineers, 29 West 39th street, New York. 527 pages, 6 in. by 9 in., bound in cloth.

The purpose of the Engineering Index is to provide a convenient and satisfactory guide to engineering literature. The 1919 edition of this index is the most complete and comprehensive work of its kind ever published. It contains over 12,000 references to articles published during the year 1919 in nearly 700 engineering and allied technical publications. The compilation of this index is based upon a review of approximately 1,100 periodicals, reports, and other publications by the engineering staff of the American Society of Mechanical Engineers. These publications are printed in ten different languages and comprise what is probably the most complete collection of scientific and engineering publications in

the world. All of the publications referred to in this index are now a part of the Engineering Societies Library in New York.

The Making, Shaping and Treating of Steel, by J. M. Camp and C. B. Francis, Bureau of Instruction, Carnegie Steel Co. 600 pages, illustrated, 5 in. x 8 in. Bound in cloth. Published by J. M. Camp, Carnegie Building, Pittsburgh, Pa.

The scope included by the title of this work naturally suggests a voluminous treatise. However, the authors have covered the comprehensive subject very well in a book of 600 pages by eliminating all non-essential matter. The book is frankly a description of the steel industry as it exists; it is not written from the viewpoint of the steel expert and comparatively little is said about the future development of the industry. For that reason, any one thoroughly versed in the manufacture of steel might find little that is new in the book. For the railroad officer who desires a thorough knowledge of the steel industry and its most important products, the book is extremely valuable. Designed as a course of instruction for salesmen, this work necessarily includes practically all the information required by those who buy or use steel in any form.

The book is strictly non-technical and opens with a discussion of the fundamentals of physics and chemistry as applied to steel making. The entire process from the ore to the finished product is then outlined in a systematic manner. The various ores, refractories, fuels, fluxes and slags are discussed and the manufacture of coke by the beehive and by-product process is described. In the discussion of the making of pig iron, the construction and operation of the blast furnace and the chemistry of the process are covered. The Bessemer and open-hearth processes are treated in a similar manner, a short history of their development being included. Another chapter is devoted to the manufacture of steel in electric furnaces which is followed by a description of the duplex and triplex processes. The section on the shaping of steel discusses chemical properties, describes the rolling mill and covers in some detail the rolling of blooms, billets, plates, rails and rail joints, the strip and merchant mill products, rolled steel wheels and axles.

The third part of the work treats of the constitution, heat treatment and composition of steel. The solution theory of steel is explained and the theory and practice of heat treatment are discussed with this as a basis. The concluding chapters are devoted to the effect of the common elements on the mechanical properties of carbon steel and a short description of the more usual types of alloy steel.

Ocean Steamship Traffic Management. By G. C. Huebner, 273 pages, 6 in. by 9 in., bound in cloth. Published by D. Appleton & Company, New York.

This book is so written as to be easily intelligible to a student who is entirely unfamiliar with the subject, and yet it is complete enough to be of value to those in the ocean traffic business who wish to learn some of the details of all phases of the work. Shippers, too, and any one whose business calls for contact with steamship traffic departments, will find this work of value. The book covers the entire field thoroughly and includes general descriptions of the various classes of concerns which provide overseas transportation service, the organization of the traffic departments, the classification and duties of the personnel, the fixing of rates, the traffic documents and papers and the classification of commodities. This book is supplementary to a work called "Principles of Ocean Transportation," written by Dr. Huebner in conjunction with Dr. Emory R. Johnson, which appeared in 1918 and which, also, was published by D. Appleton & Co.

Letters to the Editor

Mine Ratings and Car Supply

TO THE EDITOR:

On page 48 of the "Buy Now and Ship Now" issue of the *Railway Age*, January 7, there is this statement: "Viewed from the broad economic standpoint, the proposal to continue rationing cars is indefensible. Studies made in the bituminous coal mining industry show that when the car supply is 75 per cent of the requirements, the cost of production is 16 per cent greater than when all demands for cars are met. If the car supply is one-half normal, the cost of coal is increased 40 per cent."

I can easily appreciate how the writer of this statement may have been misled into making it by the chart which is shown on page 34, but there is an error in the statement which, to my mind, does some injustice to the railroads. To illustrate, let me say that the requirements at the mines for coal cars in time of extreme car shortage are frequently much in excess of their actual ability to load coal. There are some extreme cases where requirements, based, to be sure, on established ratings, are more than 50 per cent above producing and loading ability. It is going pretty far to say that when the railroads furnish but 75 per cent of such highly excessive requirements, the result is an increase of 16 per cent in the mine cost of production. And it is equally erroneous to charge that a 50 per cent car supply, based on mine requirements, would increase production costs 40 per cent.

I understand that the chart which is shown on page 34 was originally published by the Fuel Administration and has more recently been given circulation by the Geological Survey. My understanding, gained from discussion with representatives of the Survey, is that what the chart is really intended to show is the extent to which mining costs are increased by loss of full time operation from any cause whatsoever—transportation disability, mining disability, or anything else. It may be admitted that with a fairly constant overhead expense, mining costs are bound to increase as the percentage of full time operated decreases. The great error is in the assumption that full time operation is represented by the maximum requirements for coal cars when that maximum figure is, as is generally admitted, greatly beyond the current producing and loading ability of the mines.

A. G. GUTHEIM,

Manager Public Relations Section, Car Service Division, American Railway Association.

SIR ROBERT HADFIELD, inventor of manganese steel and a leader in the British steel industry, has been awarded the John Fritz gold medal for notable scientific and industrial achievement. Manganese steel, non-magnetic, was used in the manufacture of millions of helmets worn during the war by American, British and Belgian soldiers. Award of the medal was voted unanimously by the sixteen members of the committee representing the American organizations of civil, mechanical, mining, metallurgical and electrical engineers.

JOHN S. MACDONALD, dining car inspector of the Pennsylvania Railroad at New York City, has received from King Albert of Belgium, an award of the Silver Medal of the Order of Leopold II in recognition of the services rendered to the royal party during the tour of the United States made by King Albert last year. Mr. MacDonald accompanied the royal party on the tour. He has been with the Pennsylvania for 20 years and has had charge of similar trips for President McKinley, President Wilson, the Prince of Wales and other notables.

Container Car in Express Service on N.Y.C. Lines

American Railway Express Company Operates Experimental Car
Between New York and Chicago

THE CONTAINER SYSTEM of transporting materials has been given much attention in the past and considerable progress has been made in development work. These experiments have, however, been made only in freight service in an attempt to relieve the congestion of traffic due to delays in loading or unloading the present type of freight car, particularly when handling less-carload shipments. Many of the same difficulties and delays are also encountered in handling express matter and this has led to the application of the container idea to the railway express service.

A container car designed especially for express service has been placed in operation on the New York Central between New York and Chicago. This car left New York recently in an American Railway Express train and after delivering its cargo of merchandise for leading Chicago department stores at the South Water street terminal of the Michigan

center sill which is supplemented by the construction of the car sides. The superstructure consists of a low steel side framing—about 30 in. high—having side plates of steel which stiffen the car frame and also serve to prevent any sidewise movement of the containers. The sides are connected at each end of the car to a cast steel anti-telescoping end-frame which is approximately the same height and width as a passenger car, having much the same appearance as a blind-end baggage car.

The containers are designed so that they may readily be removed from the car and loaded upon automobile trucks. They are 9 ft. long by 6 ft. wide inside, have an inside clear height of 7 ft. 4 in. and a capacity of 6,000 lb. They are substantially built of structural steel and being entirely of metal will eliminate the losses due to damage from fire. A door is provided in one side of each container through which



New York Central Container Car Designed for Handling Express Matter, Equipped with Passenger Trucks and Buffers and with Air, Steam, and Signal Line for Passenger Train Operation

Central Railroad, was reloaded and made a return trip to New York.

A Nine-Section Express Car

The car is a nine-section express car, its sectional cargo space consisting of nine separate containers or steel boxes firmly secured on the car to prevent shifting during train movement. Each container is removable so that it may be transported by motor truck between stores or factories and the railroad.

This new equipment was built by The Merchants Despatch Transportation Company of East Rochester, N. Y. It consists of a modified low-side gondola car carrying nine containers which may be lifted on or off the car by means of a crane or other type of hoisting apparatus. The car is constructed along the lines of the New York Central standard 60 ft. baggage car and is mounted on two four-wheel trucks of the passenger type. It is equipped with passenger buffers and with air, steam, and signal line connections so that it may be operated in passenger train service. The underframe is of steel construction throughout having a deep

the material is loaded and the door then locked and sealed. The container is then placed upon the car where the side of the car which projects above the base of the door gives additional security to the contents as the door cannot be opened until the container is raised above the top of the side frame. This feature makes the pilfering of goods—now so prevalent—practically impossible. Besides the facility with which the container and its contents may be handled, this method of transportation is expected to eliminate much of the delay caused by the detailed billing and re-checking of small shipments.

On the initial trip of this express car, the handling of the loaded containers was accomplished with surprising speed. With no special station equipment—only a locomotive crane being available—the containers were transferred from motor trucks to their positions on the car in from 30 seconds to two minutes each. Under existing conditions, this nine-section express car could therefore be unloaded and reloaded ready to proceed within 40 minutes. No crew of handlers equipped with trucks could possibly equal this performance.

In addition to the nine-section steel container car now in

passenger train express service, there are at the present time under construction at the plant of the Merchants Despatch Transportation Company other container cars for use in freight train service. These cars, which are 46 ft. long, are provided with steel underframe, wooden sills and floors, and steel sides and ends about 24 inches high for holding the containers in place. The cars will be equipped with standard freight car trucks and will be in every way suited for regular freight train service. The containers now under construction for use with these cars in freight service are 15 ft. long, and 3 containers will be used on each car. They are constructed with steel sides, ends, roofs and floor frames, wooden floors and sheathing and doors in one end only.

Other Container Cars Under Construction

It is expected that this container car system will be expanded by the New York Central to completely co-ordinate the steam railroad, the motor truck and the electric railway.



Empty Container Showing Interior and Door Construction

If it proves to be successful in actual service it will bring about a new system of handling less-carload freight and express matter between large centers of population. The New York Central primarily seeks greater security for shipments in transit, the losses to the railroads through the theft and damage of goods having increased alarmingly in recent years—the aggregate annual loss and damage claims paid by American railroads in 1920 having been increased about 300 per cent since 1914. Several other points of improvement in service are expected from the container car system of transportation. This system provides that the portable containers shall be loaded and locked on the shippers' premises and then conveyed by motor truck and lifted aboard the car. At destination the locked container is carried by motor truck direct to the consignee. All of the intermediate handling and checking processes are done away with.

Another advantage of the new system which is expected to prove most valuable is greatly increased use of rolling stock in actual service. This is particularly important when traffic expands to its "peak" and the prime need is to shorten layovers of cars in yards and stations for loading and unloading, and to limit their idleness through misuse for storage purposes. With ample supplies of the removable containers,

which in their several classes will be of uniform size and interchangeable, one carload of the containers may be removed and sent with their loads to consignees, and another set immediately hoisted to their places and the car be ready to proceed within a matter of minutes. The containers may remain on station platforms or on the premises of shippers



Loaded Container Being Lifted from Motor Truck

for loading or unloading at convenience, without tying up rolling stock at points where track capacity is limited.

One of the difficulties that will be encountered in the operation of this system will be the lack of adequate lifting apparatus on the premises of many shippers, which will necessitate the tie-up of a motor truck while the container is unloaded and reloaded. Other difficulties that must be overcome are: the possibility of scattering the containers over



Locomotive Crane Placing a Loaded Container on the Car

too wide a territory and the probable lack of sufficient suitable traffic in one direction. These objections to such a system are, however, vastly outweighed by the advantages.

The performance of this first car in express service will be followed closely and it is expected that in a future issue, the readers of the *Railway Age* will be given some very interesting operating data.

National Agreements Must Be Abrogated At Once

General W. W. Atterbury Predicts Disaster Unless Labor Board
Ends Present Working Rules

THE IMMEDIATE ABROGATION of all national agreements, the remanding of the question of rules and working conditions to negotiation between each carrier and its own employees, the re-establishment of the agreements, rules and working conditions in effect on December 31, 1917, and the right to pay unskilled labor not less than the prevailing rate of wages in the various territories served by any carrier, were requested of the Railroad Labor Board on January 31 by General W. W. Atterbury, vice-president of the Pennsylvania and chairman of the Labor Committee of the Association of Railway Executives. The request was accompanied by a vigorous statement of the present precarious financial position of many of the carriers, General Atterbury predicting bankruptcy for many and a resulting financial panic unless steps are taken immediately to cut needlessly huge wage payments and thus bring operating expenses into proper relation to the operating revenues now accruing under increased freight and passenger rates.

General Atterbury's Statement

The complete text of General Atterbury's statement to the Board follows:

"I have come under a strong sense of duty to lay before you an acute situation. Unless this Board takes prompt action many of the railways of the United States may be forced into insolvency. Many railroads are not now earning, and with present operating costs and traffic have no prospect of earning, even their bare operating expenses, leaving them without any net return and unable to meet their fixed charges. The emergency presented can be met either by an advance in freight and passenger rates, or by a reduction in operating expenses. With declining prices and wages in industry and agriculture the country demands that the solvency of the railroads must be assured by a reduction in operating expenses, and not by a further advance of rates.

"The national agreements, rules and working conditions forced on the railroads as war measures cause gross waste and inefficiency. I estimate that the elimination of this waste would reduce railway operating expenses at least \$300,000,000 per annum. It would be far better to save this sum by restoring conditions of efficient and economical operation than to reduce wages. We believe that as the wages of railroad employees were the last to go up, they should also be the last to come down, but we do insist that for an ample wage, an honest day's work shall be given.

"The public has the right to insist that this must be obtained. The public has also the right to expect that the railway executives, with the co-operation of the regulatory bodies and the employees, will as rapidly as possible reduce the cost of railway operation so as to eventually insure a reduction in rates. Ultimately a readjustment of basic wages will be required. Meantime it is to the interests of all concerned, including labor, that the rules and working conditions shall be made conducive to the highest efficiency in output per man.

"Mr. Whiter and his committee have far from exhausted their evidence on this subject and if required to will of course proceed. But it will be dangerous to continue the consideration of these agreements rule by rule. If the Board follows its present procedure, months will elapse before it can render its decision.

"The urgent financial necessities of the railroads will not permit them to wait any such length of time for relief. Long before the present detailed hearings are concluded the Board

will be flooded by appeals from individual railroads from all parts of the country for reductions in basic wages. It will be impossible for the Board to hear and dispose of these separate cases upon their merits in time to avoid numerous receiverships and the possibility of a national panic.

"When wages have been too low, the harm done has been offset by retroactive increases. Losses of railway net operating income are irreparable. You cannot make retroactive tomorrow the savings that should have been made today. Your Board cannot possibly write the rules and working conditions of every railroad in this country and adjust them equitably to varying geographical, operating and social conditions. It rests entirely with your Board to determine within the next few days whether this whole situation shall drift into chaos and orderly procedure become impossible except at the price of railroad bankruptcy, financial shock and still wider unemployment.

"The Labor Board can prevent this catastrophe by declaring that the national agreements, rules and working conditions coming over from the war period are terminated at once; that the question of reasonable and economical rules and working conditions shall be remanded to negotiation between each carrier and its own employees; and that as the basis for such negotiations, the agreements, rules and working conditions in effect on each railroad as of December 31, 1917, shall be re-established.

"If the Board will do this, the Labor Committee of the Association of Railway Executives will urge upon every railroad company a party to Decision No. 2, that no proposal for the reduction of basic wages shall be made within the next succeeding 90 days. This will afford an opportunity to gauge the economies which can be accomplished through more efficient rules and working conditions.

"It also will afford additional time in which to realize the benefits of a further decline in the cost of living. The course which we are recommending is not only imperative but equitable. When President Wilson issued his proclamation on December 26, 1917, assuming government control of the railroads, he said: 'Investors in railway securities may rest assured that their rights and interests will be as scrupulously looked after as they would be by the directors of the several railway systems.'

"In his address to Congress on January 4, 1918, President Wilson said: 'The common administration will be carried on with as little disturbance of the present operating organizations and personnel of the railways as possible.'

"The War Labor Board declared that the war period was an interregnum to be used by neither the employer nor the employee for the purpose of bettering or impairing the position of either.

"To perpetuate as the normal rules and working conditions on the railroads, the extraordinary provisions of the war period is a distinct violation of all the foregoing promises. The war has now been over more than two years. The time has come when, if the railways are to be efficiently and economically operated, in accordance with the provisions of the Transportation Act, normal conditions of employment and of working conditions must be restored and increased efficiency of labor be secured.

"If your Board adopts the foregoing suggestion, there is but one aspect of the wage question on which we ask immediate action. The basic rates now established by your Board for unskilled labor are from 39 to 48½ cents per hour. Since your decision was made on July 20, 1920, these rates

have fallen materially throughout the United States. For your Board to require the railroads to continue to pay wages to unskilled labor far in excess of those paid by other industries is unfair to those industries, and bears with grave injustice upon the great body of our farmers. Within the next month or six weeks practically all of the railways of the country must recruit their unskilled labor forces. It is desirable that a large part of the work for which these men are necessary be concentrated in periods when the same labor is not needed in harvesting the crops. We therefore ask the immediate permission of your Board to pay for unskilled labor not less than the prevailing rate of wages in the various territories served by any carrier, in accordance with Section 307 of the Transportation Act.

"I regret the urgency of the foregoing presentation. Its informality does not indicate any intention on the part of the railway companies to violate the principle of orderly procedure in such matters. But to sit by and see this situation develop without bringing it promptly and strongly to the attention of this Board would be to sacrifice both the spirit and the letter of the Transportation Act.

"In our judgment, unless the proposed measures be taken promptly by your Board, a situation will shortly develop in which orderly procedure will become entirely impossible. Your Board will be faced with the gravest responsibilities, which it could not possibly successfully perform, in a condition of national confusion, if not of chaos."

At the close of General Atterbury's statement, H. T. Hunt, a member of the public group on the Board, and Judge R. M. Barton, chairman of the Board, suggested that representatives of the railroads and the employees meet to formulate means, if possible, to avert the disaster predicted by General Atterbury. To this suggestion the latter replied that negotiation would be futile because of the dissimilarity of the views of the executives and of the employees and because of the necessity for immediate action.

Chairman Barton then stated that the requests made by General Atterbury would have to be considered in executive session but, in reply to a question of B. M. Jewell, president of the Railway Employees' Department of the American Federation of Labor, he said that representatives of the employees would be heard before any action was taken by the Board. Mr. Jewell and other representatives of the employees present at the hearing declined to reply to Mr. Atterbury's requests or to make any statement at that time. Mr. Jewell, however, stated that he would prepare a reply on behalf of the employees which would be presented to the Board later.

General Atterbury's statement was made after the Labor Committee of the Association of Railway Executives had been in session at Chicago for three days discussing the present labor situation and formulating plans for the restoration of conditions under which an honest day's work for an honest day's pay might be rendered by railway labor.

At the close of the afternoon session of the same day, J. G. Luhrsen, president of the American Train Despatchers' Association, replied on behalf of his organization to General Atterbury's remarks.

As a representative of the American Train Despatchers' Association he entered formal protest against the Labor Board's granting General Atterbury's requests. In his protest he stated that the Transportation Act would be violated by permitting carriers to bring before this Board mere theories without following the requirements of the law governing the manner of bringing matters before the Board. He protested the statement of the carriers asking that immediate action be taken by the Board in line with their requests and took issue with the statement that national agreements were forcing the carriers to compensate employees without obtaining from them effective performance of duties. He

charged railway managements with deceptive and inefficient operation and stated that analysis of the operating records of the carriers, particularly the train sheets, would disclose operating inefficiency which if corrected would produce a saving greatly in excess of the waste of \$300,000,000 alleged by General Atterbury as resulting from the national agreements. He stated that the desire of the carriers to reopen negotiations concerning certain agreements with all employees were false, misleading and wholly without merit. He further stated that if the Board is flooded with requests by the railroads for immediate reduction in wages such action will be considered propaganda to interfere with the orderly procedure of the Board.

The right of Mr. Luhrsen to discuss national agreements before the Board was immediately questioned by E. T. Whiter, chairman of the Conference Committee of Managers of the Association of Railway Executives, who stated that Mr. Luhrsen's organization is not a party to such an agreement. Mr. Luhrsen replied that his organization did have a national agreement with the carriers. Mr. Whiter in turn denied this assertion and asked that Mr. Luhrsen's remarks regarding national agreements be stricken from the Board's record. No ruling was made on this request and the Board was adjourned for the day.

Carriers' Opposition to Hourly Wage Summarized

The progress of the hearings on the demand of employees for the continuation of the national agreements formed during federal control has been reported in the *Railway Age* of January 14 (page 199), of January 21 (page 243) and of January 28 (page 297). The railroads' testimony regarding the detrimental effects of the abolition of piece work and the substitution therefor of the hourly wage system of pay was completed on January 25. The following day, Mr. Whiter summarized the carriers' opposition to the hourly system by denouncing the "restrictive rules fastened upon the railroads under government control by the United States Railroad Administration" as productive of great inefficiency and waste in operation. He then requested that the Board "permit the reintroduction into railroad work of methods of paying employees that will offer proper incentive to increased effort and give proper and adequate recognition to skill and industry.

"The public," he said, "pays in freight and passenger rates all the expenses incurred by the railways. The railways, under the Transportation Act, are required to be operated as economically as practicable so that the public will not have to pay excessive rates. The evidence we have introduced regarding the effects of the abolition of piece work in the shops of railways in every section of the country shows that in every case where the system of piece work—that is, the system of paying employees in proportion to the amount of work that they individually do—was abolished, and the system of guaranteeing day wages substituted, there has been a reduction in the average amount of output per employee per hour, and in most cases these reductions have been from 25 to 50 per cent. We have presented detailed studies showing actual results on the Baltimore & Ohio, the New York Central and the Pennsylvania in the east; on the Chesapeake & Ohio, the Louisville & Nashville, the Norfolk & Western in the southeast; on the Chicago & North Western and the Union Pacific in the west. An analysis of these studies comparing the efficiency of employees paid on the merit or piece work basis in 1917 and 1918, and the efficiency of the work done by the same men since then on the day wage basis, conclusively shows serious loss of production in the shops of the railroads when working on day wages as compared with piece work wages, resulting in excessive costs to the railroads and consequently to the public. The abolition of piece work has not only reduced the efficiency

of employees, but has also reduced the amount of output the companies can secure from their shops.

"We submit that this is merely a proof in detail of what practically every man knows from his own daily experience and from common knowledge of human nature. It does not require any figures to prove to any of us that the average man under normal conditions, day in and day out, will exert himself more in production if his work is rewarded in proportion to his efforts, than if he receives a flat daily wage no matter how little work he does.

"When the railways were returned to private operation the public expected an increase in their efficiency and economy of operation. We are seeking the abolition of restrictive rules imposed under government control, such as this one prohibiting piece work, because unless rules and working conditions can be adopted which tend to promote efficiency the managements of the railways cannot secure the increases in efficiency and economy of operation which are necessary to protect the public from excessive costs of transportation, and excessive freight and passenger rates."

Railroads Oppose New Agreement for

Maintenance of Way Workers

On January 31, following General Atterbury's statement, Mr. Whiter, at the request of Chairman Barton, resumed his presentation on behalf of the carriers, discussing their opposition to the national agreement requested by the United Brotherhood of Maintenance of Way Workers and Railway Shop Laborers. In his testimony Mr. Whiter first pointed out that this organization, unlike the Shop Crafts, has asked the Board to sanction a new and more restrictive national agreement instead of asking for the continuation of the one now in effect. The opposition of the railroads against the proposed agreement is based, according to Mr. Whiter's testimony, on seven specific objections. These objections are:

"(1) The proposed rules extend their scope to classes of employees not heretofore represented by this organization; to many who are not employed in the maintenance of way department by all railroads.

"(2) The proposed rules are intended to be applied to officers; or to men who may be represented by other organizations.

"(3) There are vague and conflicting rules.

"(4) Some of the proposed rules are impracticable of application or contain requirements which involve unnecessary work.

"(5) The proposed rules will result in a reduction of efficiency and productivity of the employees.

"(6) The proposed rules would prevent the giving to incapacitated employees employment suited to their capacity.

"(7) The proposed rules effect a further increase in earnings for work performed; also pay for time in which no work is performed."

Atlanta, Birmingham & Atlantic

Asks Wage Reduction

The serious situation outlined by General Atterbury was first disclosed when the Atlanta, Birmingham & Atlantic, through its president, B. L. Bugg, petitioned the Board on January 25 for authority to reduce wages "to a level that would enable the property to keep out of a receiver's hands." Mr. Bugg declared that the road is losing \$100,000 a month despite the fact that its working force has been reduced to the lowest possible point.

Chairman Barton agreed with Mr. Bugg that the case was pressing and after the Board had considered the case in executive session the following order was issued on January 27:

RESOLVED. In case of disputes which have arisen between the Atlanta, Birmingham & Atlantic and its employees by reason of the carrier having given 30 days' notice to employees in the various classes of its service of

certain reductions in their rates of pay, which would be made effective February 1, 1921:

That objection having been made by the employees, and a dispute having arisen in regard to the proposed reduction, and the matter having been brought before the Board, the Board decides that no change of any kind shall be made except by agreement between the parties until the dispute is heard and opportunity given for the board to decide.

The Board will proceed with the further hearing and consideration of the case, and sets February 10 as the date for such further presentation of evidence or argument as the parties may desire to offer.

In the meantime the Board suggests further conference between the parties and an effort on their part to agree on a settlement.

On February 2 and 3 Mr. Whiter continued his presentation on behalf of the carriers, taking up in turn their opposition to the continuation of the national agreements with the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, the Brotherhood of Railway Signalmen of America, the International Brotherhood of Stationary Firemen and Oilers, and the Order of Railroad Telegraphers. The testimony regarding these agreements was in general similar to that which has already been presented in regard to the shop crafts agreement. The character of this testimony has been outlined in previous issues of the *Railway Age*.

Various of the "independent" railway organizations have been fighting since the beginning of the present hearings for the right to present their views regarding national agreements independently. On February 2 the Board's decision on their petitions was made public, representatives of these organizations being granted the right to be heard in the present case despite the opposition of the larger brotherhoods who have maintained that the members of the independent organizations are adequately represented by them.

Withholding of Guaranty Declared Injury to Nation's Economic Structure

URGING THAT IMMEDIATE ACTION be taken on pending legislation to authorize the secretary of the treasury to make partial payments on the \$340,000,000 due to the railways from the government, John S. Drum, of San Francisco, president of the American Bankers Association, has presented a memorial to Congress, in which he points out the great injustice of the present situation and indicates how it reacts to the detriment of agriculture, commerce and trade.

Copies of the memorial have been forwarded to Chairman Esch, of the House Interstate and Foreign Commerce Committee, to Senator Cummins, chairman of the Senate Interstate Commerce Committee.

"The American Bankers Association," says the memorial, "urges upon you the immediate need of legislation that will authorize partial payments of amounts due to the carriers from the government under the guaranty provisions of the Transportation Act of 1920 as those amounts are ascertained and certified from time to time by the Interstate Commerce Commission. The Economic Policy Commission of the American Bankers Association, of which Paul M. Warburg, of New York, is chairman, has investigated the situation thoroughly and adopted recently the following resolution:

"That it is the sense of this commission that legislation be urged which would make immediately available the funds which are held by the government for the railroads without the necessity of filing their complete claims."

"Serious injury is being done to the entire banking situation in the United States and therefore to the entire economic structure of the country by reason of the decision of the comptroller of the treasury (which has been sustained by the Supreme Court of the District of Columbia) that under the Transportation Act, as at present constituted, the secretary of the treasury cannot make any payments to the carriers before their entire claims for compensation shall have been audited

and certified to the secretary of the treasury by the Interstate Commerce Commission.

"The refusal of the treasury department, based purely on a technical construction of the Transportation Act, to make partial payments as amounts due to the carriers are certified by the Interstate Commerce Commission from time to time has rendered the railways unable to meet their current obligations from their own funds. They have therefore either been forced to borrow money from the banks to meet these obligations, or by foregoing payment to creditors have forced these creditors to borrow from the banks the money necessary to operate their own business. In either case banking credit in the United States is forced to bear, in addition to the extraordinary demands of business generally, a further burden of about \$340,000,000 which, according to the secretary of the treasury, is the amount due to the railways under the Government guaranty.

"This great burden has put a further strain on banking credit already heavily taxed, and increases their difficulties in supplying facilities urgently required by agriculture, commerce and trade. The purpose of Congress in enacting those provisions of the Transportation Act which provide for compensation to the carriers for deficits incurred under federal control, was to render aid to the railways so that in the interests of the people as a whole, during this period of readjustment, the carriers might as speedily as possible make the additions and betterments necessary to meet properly the requirements of the nation. That purpose is wholly nullified if the carriers are deprived of the use of the money due them until their entire claims have been audited and certified to the treasury department for payment.

"Legislation that would remedy this serious situation, by expressly declaring it to be the intent of Congress to permit partial payments to the carriers as the amounts due them are certified from time to time, has been introduced in Congress. Realizing as it does the disastrous consequences flowing from the wholly avoidable tieup of credit facilities involving hundreds of millions of dollars, the American Bankers Association urges upon you, with all the earnestness it is capable of expressing, to act immediately and favorably upon this legislation for the strength that will be given to the country's credit structure, by the prompt release of this huge sum that is due to the railroads."

Santa Fe Coast Lines

Car Loading Campaign

LAUNCHING ITS CAMPAIGN to promote heavier car-loading and the conservation of equipment with the slogan, "The Gospel of a Good Load," the Coast Lines of the Atchison, Topeka & Santa Fe inaugurated an interesting and comprehensive plan to stimulate action in this important subject on June 1, 1918. The results have been so gratifying that the plan might well be used by other lines.

In the campaign, instructive material and data have been compiled and presented in pamphlet form. The method has been to express by percentages the loading record—a capacity load representing 100 per cent—at the various stations for specific commodities, together with a table setting forth the general standing. The pamphlet is published monthly and every five months a consolidated statement is prepared. Thus from month to month a given station can trace its record and standing while the general progress can be determined from the consolidated tables. Progress or failure, together with reasons therefor, are pointed out by comment and comparison. Each station can find by examination of the detailed statements just where it stands in respect to the records of the others; in other words, "detailed statements, showing the performance by stations and commodities are given so that each agent and other employee or officer interested can familiarize himself with the tonnage moved, compare one station with another and determine in his own mind the best method to adopt to bring the loading of any commodity up to the highest percentage possible." The goal of 100 per cent is maximum tonnage and the records from month to month present in figures the loading history and results obtained.

J. R. Hitchcock, assistant general manager of the Coast Lines, under whose signature the pamphlet is sent to the employees, in concluding his instructions in one of the pamphlets presents the keynote of the campaign in the following statement: "The extent to which we can make full use of such equipment as we are able to secure for loading will be measured by the enthusiasm and energy displayed by our agents and others in preaching the Gospel of a Good Load and getting the loaders to practice it."



Photo by Ewing Galloway, N. Y.

In the New York, Susquehanna & Western Yard at Undercliff, N. J.

Wood Preservers' Association Meets in San Francisco

Annual Convention Afforded Opportunity to Study Timber Production and Treatment Developments

THE AMERICAN WOOD PRESERVERS' ASSOCIATION met in its seventeenth annual convention at the St. Francis Hotel, San Francisco, on January 25-27, inclusive, with over 125 members and guests in attendance. As this was the first meeting of this organization west of the Mississippi river, unusual interest was manifested in the opportunity to study the timber resources of the west and to witness the methods of manufacturing the lumber, which is now coming onto the eastern roads in large quantities.

The officers of the association for the past year were: President, A. R. Joyce, Joyce-Watkins Co., Chicago; first vice-president, C. M. Taylor, Supt. Port Reading Creosoting Plant, C. R. R. of N. J.-P. & R., Port Reading, N. J.; second vice-president, E. B. Fulks, consulting engineer, Chicago; secretary-treasurer, F. J. Angier, Supt. timber preservation, B. & O., Baltimore, Md.

The convention was called to order at 10:30 Tuesday morning. Hon. James Rolfe, mayor of San Francisco, welcomed the organization to the city. The report of the secretary-treasurer showed the election of 81 new members during the year and a total membership of 373 on December 31, 1920, of which 97 are in railway service on 40 different roads.

In his opening address, President Joyce emphasized the widespread interest now being exhibited in the treatment of timber and predicted that the industry is now on the eve of a tremendous expansion in railway work and elsewhere.

Report of Committee on Preservatives

The major portion of the report consisted of a discussion of the physical and chemical properties of zinc chloride, methods of handling and of analysis, specific gravity tables, etc.

Three papers bearing on the effect of zinc chloride treatment on the strength of wood were also included as follows:

"Experiments on the Strength of Treated Timber," by W. K. Hatt.

"The Effect of the Zinc Chloride Process of Preservation on the Strength of Structural Timber," by H. B. Luther.

"Results of Some Tests of the Effect of Zinc Chloride on the Strength of Wood," by T. R. C. Wilson and Ernest Bateman.

The first of these papers described experiments planned by Dr. Hermann von Schrenk and Dr. W. K. Hatt, and published in 1906 under the authorship of the latter. The second paper was an original contribution by Prof. H. B. Luther, of the Massachusetts Institute of Technology, and the third was an original paper by Messrs. Wilson and Bateman of the Forest Service, describing tests made by them at the Madison laboratory. The three papers taken together seem to indicate that:

(1) The treatment of wood with the usual strength of zinc chloride solutions seems to have but little permanent effect upon the strength of wood in bending even 5 years after treatment, provided the temperature of the wood during that time is not excessively high.

(2) There seems to be a slight permanent decrease in the resistance of zinc-treated wood to shock even at the normal temperatures. This decrease seems to be greater with greater absorptions of zinc chloride.

(3) At temperatures somewhat higher than the normal there may be a considerable reduction in all strength values.

The report also included information concerning vertical-retort tar. At the present time there is of vertical installations of all kinds a production of between 9,000,000 gal.

and 10,000,000 gal. per year of vertical-retort tar. With the existing high cost of gas oil, and the probability that it will continue high for a number of years, a very considerable number of plants are considering the installation of more coal gas capacity, and plans are drawn for the installation of 85,000,000 cu. ft. of vertical retorts. This will bring up the production to between 40,000,000 gal. and 50,000,000 gal. of tar per year. Coke-oven tar in its general characteristics resembles on one hand coke-oven tar and on the other, blast-furnace tar. Vertical-retort tar is more fluid than coke-oven tar, and is comparatively low in free carbon. Naphthalene is practically absent. Its tar acid content and sulphonation residue are high. Creosote oil made from vertical-retort tar on fractionation yields fractions which fall below the specific gravity requirements of the A. W.-P. A. specifications, but in general are well above the specific gravity range of oil derived from water-gas tar. Certain vertical-retort tars yield oils having gravities of fractions as low as water-gas oil. The latter tars are unusual, however, and are produced in limited quantities.

Water Gas Tar

A paper on water-gas tar, by W. H. Fulweiler, was also presented as a part of the report of the committee in which it was pointed out that the production for 1920 was 80,000,000 gal. As a result of practical experience it has been found that water-gas tar derivatives whether refined tar, distillates or mixtures, appear to give very satisfactory penetration. They have been used commercially in the full-cell, Rueping and Card processes with entirely satisfactory operating results.

The water-gas tar derivatives have been used in practically every branch of the wood-preserving industry. Its authenticated commercial use in treatment of railroad ties began in 1910, when the Public Service Railway Company of New Jersey began to use it in a regular 10-lb. treatment on their ties. They probably have in track 500,000 ties treated with water-gas tar. Its use by steam roads began in 1914. The Baltimore & Ohio has treated approximately 5,000,000 cross-ties with the Card process, using 1/2-lb. zinc chloride with 3 lb. water-gas tar. The Chicago, Burlington & Quincy has treated about 171,000 ties with water-gas tar and zinc chloride solution. The Philadelphia & Reading and the Pennsylvania have used water-gas tar in admixtures with coal-tar products in varying percentages from 10 per cent up to straight water-gas tar.

Report on Economics of Non-Pressure Treatments

As a general rule pressure treatment is more thorough, gives a longer life to the wood, and is more economical than non-pressure treatment. The penetration obtained by pressure is deeper, more uniform, and more subject to the control of the operator. Furthermore, the amount of preservative injected to obtain a given penetration may be varied to suit different requirements. This results in economical use of preservatives. It is possible also by pressure equipment and processes to treat green timber, when seasoned timber is unobtainable, whereas non-pressure processes require thoroughly seasoned wood.

On the other hand, there are innumerable cases where

pressure treatment is for some reason either impossible or inadvisable and the wood must be either treated by a non-pressure process, used without treatment of any kind, or replaced by some other structural material.

There are three principal methods by which wood can be treated without the use of artificial pressure, namely: (1) Surface treatments, (a) Spraying, (b) Brushing, (c) Dipping; (2) Hot and cold bath treatment; (3) Steeping treatment.

With methods (1) and (2) coal-tar oil and similar oil should be used.

With method (3) water-soluble preservatives, such as zinc chloride, sodium fluoride, and mercuric chloride should be used.

Non-pressure treatment should be adopted only when it is apparent that the added life which might be obtained by pressure treatment is not sufficient to offset the additional cost of the treatment, or when it is practically impossible to obtain pressure-treated timber. Specific cases in which non-pressure treatments are most likely to be advisable are as follows:

(1) For treating timbers and lumber used in building and car construction and repair work which must be framed at the building site, or which are used in such small quantities that it is impracticable to send them away for pressure treatment. Of the various non-pressure treatments possible, hot and cold bath treatment with creosote will generally be most effective. When apparatus for this process is not available, surface treatments may be used. For places where the odor or color of creosote would be objectionable, water-soluble preservatives applied by the steeping process may be desirable. These preservatives are, of course, not suitable where the wood is likely to be wet frequently.

(2) For timbers used in interior construction where the ends are placed on concrete, brick, or stone foundations, and only the ends are subject to decay, and for any other timbers where only points of contact with wood or other material are likely to decay prematurely, surface treatments are usually the only methods which can be used in such places, but great benefit at little expense can be expected.

(3) For fence posts under conditions which make pressure treatment out of the question, hot and cold bath creosote treatment of the butts is recommended, together with a hot or cold bath treatment of the tops. Surface treatments are not as effective as hot and cold bath treatment, and their use on posts is seldom to be recommended.

(4) For telegraph and telephone poles of durable species, from which experience has demonstrated good service may be expected when butt treated, the hot and cold bath treatment is recommended. Surface treating the butts of poles of durable species with creosote is usually also sufficiently effective to more than pay for the cost of treatment and may be used to good advantage where conditions prevent more thorough treatment.

Poles of non-durable species, especially for use in the southern states should be treated throughout their entire length by a pressure process.

(5) In general, the hot and cold bath treatment is the nearest substitute for pressure treatment, and is to be recommended in preference to the more superficial treatments. Dipping, spraying, and brush treatments are more superficial than the hot and cold bath process and generally result in only a slight penetration of oil. They are, therefore, most suitable for timbers not subjected to mechanical wear or serious checking. The steeping process due to the long soaking period approaches the hot and cold bath process in the matter of penetration. Since water-soluble preservatives are used, the treated wood has the limitations and advantages common to these preservatives.

Service Tests of Ties

The committee submitted detailed progress reports of the service secured from treated ties on the A. T. & S. F., the B. & O., the C. I. & L., the C. R. I. & P. and the St. L.-S. F. W. H. Kirkbride (S. P.) described a test installation of 90 creosoted ties, 65 of which were still in the track after 20 years' service. S. D. Cooper (A. T. & S. F.) described the practice adopted on that road three years ago whereby all ties taken out of track are inspected by representatives from the office of the superintendent of timber preservation before destruction, as a result of which the number of ties taken out prematurely has been reduced greatly.

The committee on ties described a series of tests of punctured ties which have been undertaken at the plant of the St. Helena Creosoting Company to ascertain the effect of perforating on the seasoning, penetration of creosote and the physical properties of fir ties and timbers. These pieces have been perforated and treated and are now under examination.

Closing Business

The following officers were elected for the next year: President, C. M. Taylor, superintendent, Port Reading Treating Plant, C. R. R. of N. J.-P. & R., Port Reading, N. J.; first vice-president, F. J. Angier, superintendent timber preservation, B. & O., Baltimore, Md.; second vice-president, H. S. Valentine, superintendent, Eppinger & Russell Co., New York City; secretary-treasurer, Geo. M. Hunt, chemist, Forest Products Laboratory, Madison, Wis. Directors: R. J. Calder, secretary-treasurer, International Creosoting & Construction Co., Galveston, Tex., and H. S. Sackett, assistant purchasing agent, C. M. & St. P., Chicago. It was voted to hold the next annual convention in Chicago.

TUSCALOOSA (ALA.) IS TO HAVE A TRAFFIC BUREAU, and the transportation committee of the Tuscaloosa Chamber of Commerce has gone so far as to entertain applications of various experts to manage it. Tuscaloosa could take no more forward step than this. A well-conducted traffic bureau is a great economy, continually active in the interest of each merchant member on the payment of one small annual fee. The Birmingham Traffic Bureau has collected \$150,000 for its clients in the past year, and that is just one item of its service. It has caused the suspension of threatened freight advances and maintained a general watchfulness over the shipping problems of the district.—*Birmingham Age-Herald*.

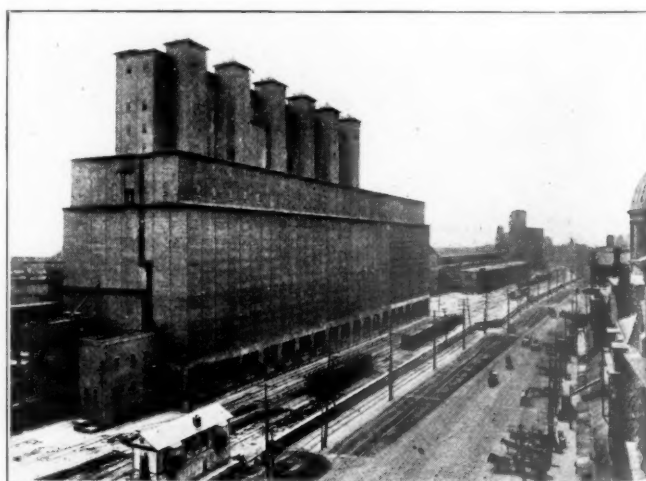


Photo by Keystone View Co.

Grain Elevator at Fort Williams, Ont.



Along the Right of Way of the Chicago, Milwaukee & St. Paul

Electric Motive Power in Freight Train Service*

One C. M. & St. P. Locomotive Handles 2,800-Ton Trains on
0.7 to 1 Per Cent Ascending Grades

By W. S. H. Hamilton

Railway Equipment Department, General Electric Company

HEAVERY TONNAGE freight trains are not only the most numerous on mountain railroads, but are also the most important and difficult from a train handling point of view. Previous to the electrification of the Chicago, Milwaukee & St. Paul, there were no roads electrified in this country where heavy trains of ordinary merchandise were handled on mountain grades. (The Great Northern electrification at Cascade Tunnel and that of the Baltimore & Ohio at Baltimore are not considered because steam engines are used to assist in starting.) Roads carrying ore or coal entirely have an immense advantage in that the cars are nearly always uniform and usually are all-steel equipment which can withstand rough treatment without injury. On the C. M. & St. P., the cars are of all kinds and descriptions and in rush seasons are often loaded beyond their normal capacity. While an effort is made to keep the weakest cars at the rear of the train, still there are many cars in service which were not designed to transmit the drawbar pull required in modern heavy freight service.

The majority of freight trains do not run on a schedule. True there is a schedule, but it is mostly used for convenience in despatching and trains are not expected to adhere to it closely. To handle freight most effectively, the locomotives should be able to get the trains over the division in about eight hours and yet be able to handle the maximum tonnage possible. To do this they should be able to take advantage of the profile and speed up wherever possible, consistent with safety. On mountain grades it is most economical to use helpers and this usually allows the same train weight to be handled over the entire division.

On mountain grades ascending, the maximum speed permitted by the desirable power input to one train with two locomotives will usually be 15-20 m.p.h. (16 m.p.h. on C.M.

& St. P.). When operating on lighter grades, ascending, the locomotive should be able to go faster. The maximum safe speed is probably about 25-30 m.p.h. but again this speed may be limited by the desirable power input to a single train. The maximum safe speed on the level or "water" grades is somewhere between 35 and 45 m.p.h. but this varies considerably depending upon the track.

In descending mountain grades the maximum safe speed is about 15-20 m.p.h. and on the lighter grades 25-30 m.p.h.

The C. M. & St. P. freight locomotives are of the geared motor type shown in one of the illustrations. The full load speed is 16 m.p.h. at 3,000 volts and the maximum operating speed for the gear ratio is 30 m.p.h. The control provides three running speeds, two full field and one shunted. These are shown on the chart together with the speed curves on accelerating resistances. Two regenerating connections are provided, one giving a speed range from about 17-30 m.p.h. and the other about 9-15 m.p.h. The first (parallel) speed is the one generally used. Motor driven exciters are used to obtain the necessary field excitation during regeneration.

Freight Train Handling

The couplers of a freight car are not rigidly fastened to it, but are connected through a friction or spring arrangement or both, which means there is considerable stretch in them when transmitting a large drawbar pull. This is called "slack" and for practical purposes is taken as 1 foot per car. If an 80-car train is started with all the slack "bunched" at the start the locomotive will move 80 ft. before the caboose starts. Those who have ridden freight trains much can best testify to the shock produced if any attempt is made to speed up the locomotive until after the caboose has been started. This "slack" represents the most difficult problem in freight train handling and the first, last and most important rule in freight train handling is to "properly control the slack."

Let us consider as the first problem in heavy freight train

*This is the second of a series of three articles on this subject. The first (*Railway Age*, January 21, 1921) dealt with passenger service requirements and passenger train operation and the third will deal with the use of helpers in freight service. The author acted as an instructor to engineers on the locomotives used on the Chicago, Milwaukee & St. Paul, from December, 1915, to August, 1917, and from December, 1919, to April, 1920.

handling, starting a train on an ascending grade of not over .7 per cent with a single locomotive. On such a grade the train will not start back down the grade by simply releasing the brakes. On the C. M. & St. P. one locomotive handles a maximum train of 2,800 tons, about 60 cars, on grades of .7 to 1 per cent. On the Missoula division between St. Regis and Deer Lodge a maximum train of 110 cars, or nearly 5,500 tons, has been handled by one locomotive against a maximum grade of .4 per cent. The first start at a terminal is made after the brakes on the train have been tested. Usually when coupling onto the train, it is pulled out as much as possible before testing the brakes in order to see if it is all coupled and also to detect any short air hoses. These frequently give trouble because of excessive slack in the drawbars and at times a short extension coupler has to be put between cars in the hose line.

Starting a Train on an Ascending

Grade Without a Helper

When ready to start, the locomotive is backed against the train enough to bunch the head third of the train and is then started ahead. In starting extreme care must be taken not to get the head portion of the train moving too fast before starting the rear portion as this is liable to set up shocks severe enough to pull out a drawbar. Since the drawbar pull required to start a car from rest is much more than that required to keep it just barely moving, a long freight train has almost to be started car by car and the problem is to keep the locomotive just barely moving until the entire train has been started. If the locomotive is allowed to "stall" while doing this it is usually necessary to start over again.

The engineer, therefore, in starting brings the controller to the first notch and off again once or twice before leaving it there. (This does not mean that the first notch on these locomotives gives too much tractive effort as it provides only enough to just about move the locomotive alone, but if the controller were left in that notch in the beginning the locomotive would speed up too much and pull the slack out of the head cars too quickly.) As the locomotive moves, car after car is started and the engineer watches the ground carefully and also the ammeter and when the locomotive seems to be on the point of stalling brings the controller out another notch. Considerable experience is required to be able to judge just the proper instant, as for best results the controller must be moved just as the locomotive seems to be stalling without actually allowing it to do so. As soon as the locomotive has traveled a distance equal to the amount of slack in the train, the acceleration may be increased to any desired amount which is usually as near the wheel slipping point as it is desirable to go.

In first starting a freight train, especially in cold weather, it is necessary to run it slowly for the first three or four miles out of the terminal in order to warm up the journal boxes gradually. If this is not done hot boxes will result. This is accomplished by accelerating to the series running position of the controller and allowing the locomotive to run there for several miles before going on into the parallel positions. This same precaution must be taken after a train has been standing for some time in cold weather.

In making an ordinary stop where there is no necessity for stopping very quickly, the controller is eased off a notch or two at a time until the 1st or 2nd notch is reached, where it is left until the train stops. The independent brakes are then applied on the locomotive and the controller is shut off. This stops the train without shock and without any interchange of slack. In starting again it is usually necessary to take slack but quite often an attempt is made to start without taking the slack; while this may be successful, it requires a higher value of current. If there are any weak cars ("soft shells") near the head end of the train, this practice should be avoided.

In starting or stopping on an ascending mountain grade with only one locomotive, about the same procedure is followed as on the lighter grade with the exception that it is very difficult to take any slack without excessive shock to the train. However, in such cases the trains are not very long and can usually be started without taking the slack. In one case that the writer is familiar with it was necessary to set a few hand brakes at the rear of the train in order to be able to take enough slack and release them by whistle signal after the locomotive had the train started again.

Comparison of Steam and Electric Operation

Before considering operation down grade, a comparison may be made between steam and electric locomotives as regards their ability to start a heavy train. The electric locomotive is superior because in the first place the torque on a steam engine is not constant, but varies depending on the position of the cranks. In the second place it is difficult to judge exactly the drawbar pull being developed by a steam engine during the time that the slack is being taken in the



A C. M. & St. P. Freight Locomotive with a 100-Car, 5,000-Ton Train, Eastbound at Thelma on the Missoula Division

train and after the train has just started. Undoubtedly an experienced engineer can tell from the sound of the exhaust how much drawbar pull is being developed by the engine after it is in motion, even at fairly slow speeds, nearly as well as can be told by the ammeter indications on an electric locomotive. During the times referred to, however, the exhausts are so few and far between that they cannot be used as a guide. The effect of the expansion of the steam in the cylinders is variable and difficult to judge while moving very slowly. This point is brought out clearly in wrecking operations where it is desired oftentimes to move a locomotive only a few inches at a time. In such cases it was found to be much easier to do this with an electric locomotive than with a steam engine. The ammeter indication on the electric locomotives is at all times a measure of the drawbar pull being developed and the engineer can tell just how close the locomotive is to the wheel slipping point and thereby judge whether to move the controller another notch or not.

After the train is in motion there is practically no difference between the steam and electric locomotives until speeds of 6-8 m.p.h. for Mallets and 10-12 m.p.h. for simple engines are reached. Here the steam engine begins to lose torque in gaining speed while on the other hand the torque of the electric locomotive can be held at full value until speeds beyond 16 m.p.h. are reached. This results in considerable saving in time in starting a train.

Before taking up down-grade operation with electric loco-

motives, it is well to consider this operation with steam engines and air brakes. When a train arrives at the top of a mountain grade it is stopped and a test of the air brakes is made by applying the brakes and noting that they apply properly on all cars, or at least noting that the gage in the caboose shows a reduction. After this the brakemen go over the train and turn up the retainers on all cars.

The train is then started and as soon as the speed reaches, say, 6-8 m.p.h. a fairly heavy application of the brakes is made. This applies the brakes on all cars. This is held for a few seconds and then the brake pipe is recharged. The next and succeeding applications are lighter (about 10 lb. reductions in the brake pipe pressure), being only sufficient to move the triple valves and insure a fresh supply of air each time to the reservoirs on the cars. The cycle of operations between successive applications requires about 1 minute and is divided about as follows: full release 20 seconds, running position 10 seconds, application 20 seconds, lap 10

part first, or at least at the same time as the rear end. Failure to make this final application often causes trains to break-in-two.

When the train is stopped, the brake pipe is recharged and the independent brakes are applied on the engine to hold the train. As the brakes on the different cars leak off the train gradually bunches against the head end and the locomotive, but since this does not occur on all cars at the same time, the cars with the brakes set retard this bunching and thus prevent excessive shocks in the train. This is another very desirable feature secured by the use of retainers and will be referred to again.

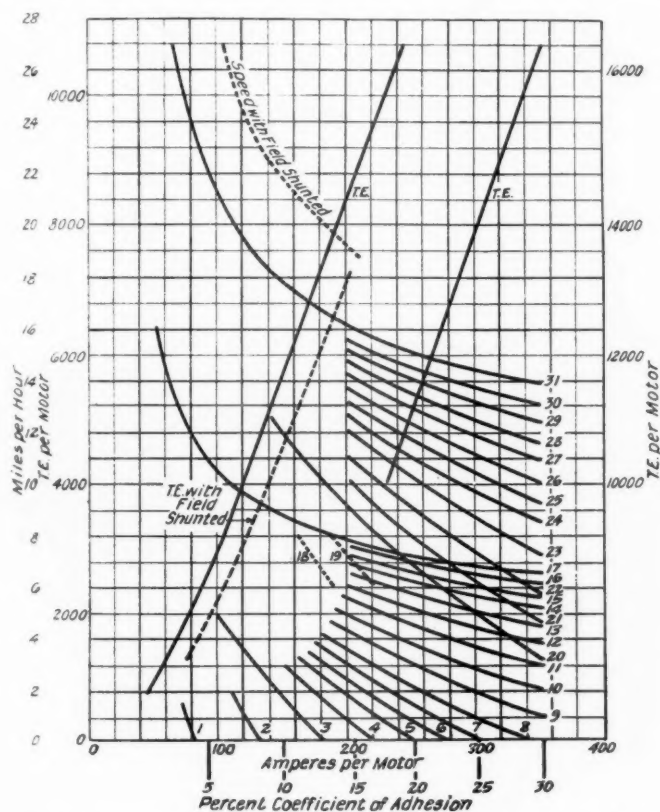
With the electric locomotives regeneration is used to control the speed and braking effort on descending mountain grades. On the freight locomotives used by the C. M. & St. P., the controller is so arranged that it is necessary to bring the main handle to either the full series or full parallel running position before the braking handle can be moved to the positions to apply and regulate the amount of regeneration. This makes the application of regeneration when "tipping over" the summit of a grade very easy, as the controller can simply be left on and the braking controller brought on as the speed increases. The regeneration starts gradually and the train bunches as each car in turn passes over the summit. However, when starting on a down-grade the application is not so easy, because of the motoring pulling out of the train slack before regeneration is applied.

The trains stop for an air brake test at the summit; this is done by making a 10 lb. reduction in the brake pipe pressure at the locomotive and noting whether this shows on the gage in the caboose. The conductor then makes a 10 lb. reduction by means of the valve in the caboose and the engineer sees it by means of the brake pipe gage in the locomotive. It is the usual practice to turn up retainers on 25 to 30 per cent of the cars, all at the head end of the train. These assist in controlling the slack in case a stop is made on the grade as previously described.

Starting a Train on a Descending Grade

The train is then started and if it is not all on the down-grade the regeneration is applied as described above. This same method is used on all grades of 1 per cent or less. If, however, the start is made from rest on a grade of 1.5 per cent or over, then the train is started and allowed to run, checking it a little at first by means of the independent brakes on the locomotive. This bunches most of the slack gradually. When a speed of about 17-19 m.p.h. is reached a light application (about 8-10 lb. reduction) of the automatic brakes is made, the independent brakes on the locomotive being allowed to apply. When this application becomes effective the main handle is brought out quickly to the parallel running position and the braking controller is brought on several notches. The independent brakes are released as soon as regeneration commences and the automatic brakes as soon as it has built up to the proper value. This procedure keeps the train bunched while regeneration is being applied and the cars with retainers assist in this, but they soon leak off and do not assist in holding the train after a few minutes.

Frequently one of these locomotives has to take a greater tonnage down a grade than it can hold by regeneration alone. To do this the air brakes have to be used to help hold the train. This condition occurs most often on the 2 per cent grade between Donald and Piedmont. One locomotive can hold back about 2,200 tons, whereas the tonnage down this grade is usually 2,800-3,000 tons. Under these circumstances more retainers are turned up though never on more than on 40-50 per cent of the cars (all at the head end) and after regeneration has commenced additional applications of the air brakes are made



Speed-Tractive Effort Curves on Resistance for C. M. & St. P. Freight Locomotives

seconds. Of course these times are only approximate and are varied by the engineer, depending on how the train is holding and the speed. The train crew in the meantime are watching the cars carefully and the retainers are cut out for a few minutes at a time on any cars which show signs of wheels overheating. Stops are made as required to cool the wheels. The brakes on the locomotive driving wheels are kept off during the descent to keep from overheating the tires.

When making a stop a full service application of the brakes is made, the engine driver brakes are allowed to apply, and just before the train comes to rest an additional application is made which is quite necessary. When the first application is made preparatory to stopping and is held on, leakage in the brake pipe throughout the train gradually causes the brakes to apply hardest at the rear of the train and this part of the train has a tendency to stop first and stretch the train out. By making an application just before the train stops, it has the greatest effect on the head end and stops that

from time to time to control the speed, the driver brakes on the locomotive being kept released. The applications are all light (10 lb. or less), being just enough to work the triple valves on the cars, and most of the work is done by the brakes on the cars with retainers up. These, however, do not heat up their wheels enough to bother. This method is entirely successful in operation, but is greatly facilitated by the arrangement provided on the bipolar passenger locomotives, whereby the brakes on the locomotive are automatically kept released while the locomotive is regenerating.

In stopping the train, the regeneration is reduced by moving the brake handle back a couple of notches and a light service application of the brakes is made, the driver brakes being allowed to apply. When the speed has decreased enough so that regeneration has practically ceased, both handles are shut off and such additional applications of the brakes are made as are necessary to stop the train.

Railroad Guaranty Bill Before Congress

WASHINGTON, D. C.

THE WINSLOW BILL, to specifically direct the Secretary of the Treasury to honor certificates of the Interstate Commerce Commission for partial payments to the railroads on account of their six months' guaranty, was favorably reported to the Senate on January 31 by unanimous action of the Senate committee on interstate commerce, after a brief hearing at which Chairman Clark of the Interstate Commerce Commission approved the purpose of the bill. The committee had had an opportunity to study the record of testimony on the bill before the House committee.

As briefly noted in last week's issue, a favorable report on the Winslow bill was filed in the House on January 26 by Representative Winslow. The report said in part:

Regardless of the question whether or not the ruling of the comptroller and the decision of the supreme court of the District of Columbia are in accordance with the terms of the law, there is no question in the minds of your committee (which held full hearings on the subject, at which were heard representatives of the carriers and of the Interstate Commerce Commission, and various individuals representing business interests) that the transportation act should be so amended as clearly to authorize the commission to make certificates in partial payment. If the commission definitely ascertains that a certain amount is due under existing law, no reason is apparent why the payment of such amount should be deferred until a final settlement of all disputed items is arrived at.

Accordingly the bill, the passage of which the committee now recommends, provides that the commission, if not at the time able finally to determine the whole amount due under section 204 or section 209, may make its certificate for any amount definitely ascertained to be due and may thereafter in the same manner make further certificates until the whole amount due has been certified. In order to clarify the bookkeeping processes involved in this payment the bill provides for the allocation among the appropriations already made by these sections of the transportation act of the partial payment warrants authorized by this bill.

The bill also authorizes the commission whenever in its judgment practicable to make a reasonable estimate of the net effect of any deferred debits and credits which can not at the time be definitely determined. When agreed to by the claimant such estimates may be used as a definitely ascertained amount which the commission is authorized to certify for payment, but such estimates so agreed upon are to be binding in final settlement. The principal class of cases covered by this provision are items for loss and damage claims and overcharge claims, which it is impossible to compute with exactness until the courts have settled the liability of the parties.

The testimony of witnesses before the committee represented very generally the railroads, the American Railway Express Company, and miscellaneous railway supply houses.

They all emphasized most forcibly the absolute need for such legislation as is proposed in this bill. They made it very clear that not only were their institutions unable to meet their proper running expenses and maintenance charges, to say nothing of pay-

ing their bills, long overdue, or undertaking to make necessary repairs or to provide for any development in order that they may keep up with the need for transportation facilities. It was testified generally that they were unable either to sell new securities or to borrow money temporarily, because of the already too great extension of their credit, on account of which banks and other creditors are demanding payments which the carriers are unable to make. Not only is this condition of affairs working against their day-to-day efficiency, but it is also resulting in the unemployment of tens of thousands of operatives who might, if the government would make payments on account, be immediately and wisely set to work.

The situation is so apparently unbusinesslike as to demand a correction of the present government method of paying its indebtedness to the carriers, etc.

In connection with the report, Mr. Winslow submitted a letter from Chairman Clark of the Interstate Commerce Commission saying that the commission is in full sympathy with the purpose of the bill and is of opinion that conditions and the financial situation are such as to make it highly desirable that the carriers shall have as promptly as possible the amounts due them under the guaranty provisions. It is physically impossible, he said, within a reasonably short time to make final certificates for all the carriers, and in the meantime it seems appropriate that partial payments should be made in so far as the same can be properly certified.

Representative Sims filed a minority report opposing the passage of the bill, both on technical grounds and on the ground that the guaranty was in the nature of a "gratuity" which the railroads are not entitled to ask for in advance of the final ascertainment of the amounts. Mr. Sims said in part:

No property right exists in favor of the carriers, as they were not required to perform any service of any character, or make any sacrifice, or incur any expense in behalf of the government in consideration of the guaranty. This guaranty provision of the transportation act can be repealed; and if repealed, no carrier would have any legal or enforceable cause of action against the government on account of such repeal.

At the time the transportation act was passed and government operation of the railroads ceased every product of the farm was double in market value that it is now. Thus the burden of this gratuity has been doubled. But, notwithstanding this fact, the carriers now ask Congress to amend the law advancing the date of payment of this gratuity so as to require it to be paid at a time when it is impossible for the farmers and producers of the Nation to receive even the out-of-pocket costs to them of their products, which will have to be sold at any price in order to pay the taxes necessary to be paid in order to comply with the unjust provisions of this bill.

The government has already paid during the guaranty period to the applying carriers by way of advances provided for under paragraph (h) of section 209, the sum total of \$260,431,874. This vast sum far exceeds the amount that any member of the House or Senate or anyone else supposed or believed would have to be paid the carriers to cover or make good any deficit that would or could possibly be incurred during the guaranty period under honest and efficient management. But we are now confronted with the astounding claim that the deficit for the six months exceeds \$600,000,000. That such a deficit could arise during six months (all spring and summer months) with no strikes, no floods, no fires, no let-up in traffic, is so astonishing as to challenge our credulity. This sum is so stupendous that duty to the public demands a congressional investigation and report by a committee of the House of Representatives before another dollar is paid on the guaranty claims of the carriers.

THE RAILROADS are desperately in need of funds. There are already considerable sums due from the government. Why, then, should it be necessary to wait until the last book is balanced before making payments? The Treasury can surely be well protected by a suitable margin. This remedial legislation is advocated by the Interstate Commerce Commission, which recognizes the necessities of the railroads, and has been willing to make certifications on account of the government guarantee. It is a matter in which common sense ought to prevail.—*N. Y. Commercial.*

Hearing on Divisions for New England Roads

Testimony of Trunk Lines Opposing That Presented by New England Roads Heard by Examiner

WASHINGTON, D. C.

HEARINGS BEFORE Examiner. Gerry of the Interstate Commerce Commission on the application of the New England lines for larger divisions of the through rates into and out of New England were adjourned on January 31 after the railroads west of the Hudson river had completed the presentation of their testimony in opposition to that which had been presented by the New England lines during December. Adjournment was taken until February 7, at which time it was expected that rebuttal evidence would be presented on behalf of the New England lines, unless the case was terminated meanwhile as a result of the meeting of railway executives in New York to consider the proposals for affording the New England lines some relief by another method than that of changing the divisions.

After the representatives of the trunk lines had given testimony in support of their contention that the divisions accorded the New England lines are already liberal, representatives of the Central Freight Association lines gave testimony to show that many of the eastern roads west of the Hudson river are in as much need of relief as the New England lines and that they cannot afford to give up any of their revenue for the benefit of the latter.

C. E. Hildum, comptroller of the Lehigh Valley, presented a series of exhibits to controvert the claim of the New England lines that the eastern lines generally had received \$25,000,000 additional revenue from the rate advance by the inclusion of the New England lines in the eastern group. He said the exhibits used in connection with the rate case showed that the eastern roads, excluding New England, needed an increase of 32.71 per cent in their total earnings to produce a 6 per cent return, while the eastern group as a whole including New England needed 33.28 per cent or only .57 per cent more than if the New England lines had been excluded. This difference, he said, represented a difference of only \$13,000,000 instead of the \$25,000,000 which the New England lines claimed based on a percentage of the freight earnings only. On the other hand, he said, the inclusion of the Pennsylvania System increased the amount which the eastern group needed by \$32,000,000 and that the inclusion of the lines of the Pocahontas region in the eastern group brought down their percentage as much as the New England lines increased it. Mr. Hildum also said that in 10 months of 1920 the operating ratio of the eastern lines outside of New England was only a fraction less than that of the New England lines and it was higher than that of the New Haven. The latter's operating ratio was 99.99 while that of the Pennsylvania was 107.12. Mr. Hildum also said that many of the roads in the eastern group did not receive the 40 per cent advance because so large a part of their traffic was interterritorial and under the commission's order took an advance of only 33⅓ per cent. On beginning the cross-examination, Charles F. Choate, counsel for the New England lines, expressed surprise that Mr. Hildum had not made up an exhibit to show that the New England lines owe the trunk lines money. Mr. Hildum said he could readily do so.

Michigan Lines Meet Same Unfavorable Influences

F. H. Alfred, president of the Pere Marquette, testified that the Michigan lines have been subject to the same unfavorable influences that have adversely affected the New England lines and that it would be unfair to require them to give up part of their revenues. The Michigan lines, he

said, have been affected in the same way as the New England lines by the change of car rentals from a mileage to a per diem basis and the increase in the per diem rate, the standardization of wages and the increase in fuel costs resulting from the increased freight rates on the coal hauled from outside. The Michigan lines have always had large per diem balances against them which have increased as the rate has been increased, and the Pere Marquette had voted against the recent increase in the rate from 90 cents to \$1.00 per car per day, while he understood the New England lines had voted for it. The Michigan lines also have to get their coal from outside, and the Pere Marquette now pays about \$1.55 a ton to get its fuel coal to its own gateways.

Formerly, Mr. Alfred said, many of the Michigan lines paid a lower scale of wages on branch lines. Approximately half of the Pere Marquette mileage is branch line. The standardization of wages, therefore, resulted in a great increase in operating expenses. When the roads were taken over the Pere Marquette had agreements as to wages and working conditions with six of the railroad labor organizations, but when this road was returned there were agreements with 16 classes of employees and the same wages had to be paid on the branch lines of light traffic as on the most congested portion of a busy single track line.

"All roads have been made to suffer and their cost of operation has been increased by the standardization of wages and unbearable working conditions," Mr. Alfred said, "and I believe these conditions have as much to do with the troubles of the New England lines as anything. I assume the New England lines are as well operated as railroads anywhere, but all roads are suffering from the onerous conditions thrust upon us."

In connection with the subject of per diem, Mr. Alfred said he had always believed that the car rental should be based on a combination of mileage and per diem that would recognize the use to which the car is put as well as the time. He suggested that instead of the present rate of \$1.00 a day, the rates should be 40 cents a day plus 2 cents a mile. Assuming an average of 30 miles per car per day, this would equal the present rate on the average, but would not penalize the originating or delivering line that necessarily has a slower movement than a purely intermediate road.

W. H. Williams a Witness

W. H. Williams, chairman of the Wabash, occupied the witness stand for an entire day, presenting an elaborate series of exhibits analyzing the situation on the New England lines in support of his contention that their remedy does not lie in a readjustment of the divisions and that their proposal to redistribute the earnings of the eastern lines proposes to take without compensation from other lines in the eastern group that are in as needy a condition as the New England lines. Many of the conditions existing in New England, he said, are closely paralleled elsewhere, and if especially unfavorable conditions exist in New England they relate particularly to the rates and expenses pertaining to local traffic rather than to the interline traffic which, he said, is handled under the same conditions as exist elsewhere. He said the application of the New England lines does not suggest a separate grouping of those lines which would allow them to be accorded separate treatment in accordance with their peculiar needs.

Mr. Williams outlined some of the earlier negotiations be-

tween the trunk lines and the New England lines which were handled by the special committee of executives, of which he is chairman, which had been called into conference on January 24 by Chairman Clark of the Interstate Commerce Commission for the purpose of making another effort to reach a solution. He said that he and President Rea of the Pennsylvania and President Maher of the Norfolk & Western, representing the lines west of the Hudson, had previously conferred with President Pearson of the New Haven, President Hustis of the Boston & Maine and Mr. Choate and had asked them what would be the attitude of the New England lines if they would recommend to the other eastern lines a plan, subject to the approval of the Interstate Commerce Commission, for raising a sum of \$12,000,000 to be paid by the other eastern lines to the New England lines for one year. This proposition was not received favorably by the New England lines, and the representatives of the two groups of roads reported back to the committee that they had been unable to reach an agreement. This proposal, Mr. Williams said, was made with the understanding that it represented no concession of legal right, that the trunk lines considered the divisions of the New England lines not only reasonable and just, but liberal, and the proposal was made with a view to protecting the credit situation and to afford the New England lines a year in which either to readjust their rates or their expenses. On cross-examination Mr. Choate said that the \$12,000,000 had been declined because it would not enable the New England lines to meet their fixed charges. He said the record ought to show that the New England lines had made a counter proposition offering to accept a sum raised by making an assessment of 1.1 per cent of the freight revenues against the eastern lines west of the Hudson, which he said would represent about \$18,000,000 or \$20,000,000 instead of the \$25,000,000 the New England lines need. This proposal was rejected by the trunk lines. Mr. Williams said that one of the great difficulties was that the New England lines and the trunk lines could never agree on the figures in the case.

W. C. Maxwell, vice-president of the Wabash, also gave testimony to show that the C. F. A. lines have no money to spare to the New England roads. He presented one exhibit which showed the percentage of net operating income earned by the C. F. A. lines and the New England lines over a series of years, which showed that during the test period 1915 to 1917 the C. F. A. lines earned only 4.77 per cent, while five New England lines earned 5.6 per cent. During the long period of years during which the New England lines were far more prosperous than the C. F. A. lines, which were in a generally bankrupt condition, he said, no complaint was made by the New England lines that the divisions were unfair. The C. F. A. rates were advanced in 1917, but the companies received no benefit until after September 1, 1920, because their guaranty was based on the earnings for the three years ending June 30, 1917. It would now only intensify the situation to transfer the troubles of the New England lines to the C. F. A. lines. He also presented an exhibit to show that in the four states of Michigan, Ohio, Indiana and Illinois, the C. F. A. lines had been losing at the rate of \$18,000,000 a year, due to their inability to collect on intrastate traffic the increased rates authorized by the Interstate Commerce Commission for interstate traffic. However, he said, the commission had decided the Ohio and Illinois cases since this exhibit was made up. Mr. Maxwell also said that since 1914 the rates from C. F. A. territory to New York had advanced more than they had to New England. This was to show that the New England lines had sacrificed a part of their revenue by extending New York rates to the more distant New England points. For example, he showed that the first class rate from Chicago to New York had advanced 110 per cent, while the

rate to New England had advanced only 101 per cent; also, he said, the Railroad Administration had put in rates much lower than those of the Anderson scale between New England and trunk line territory. If it had put in the scale rates as a minimum it would have been a big help to both New England and the trunk lines.

On January 31 E. J. Pearson, president of the New York, New Haven & Hartford, took the stand to offer rebuttal testimony to statements made by Mr. Williams, which he said reflected on the management of the New England lines. Mr. Pearson said that passenger traffic in New England paid better than freight and that the deficiency in earnings regarding which the New England lines are complaining results largely from the freight traffic. He pointed out improvements made by the New England lines which had not been noted by Mr. Williams in his exhibits.

Letter Ballot Proposed After New York Conference

A joint conference of the New England, trunk line and C. F. A. railroad executives was held in New York on Tuesday. It is understood that the conference discussed a proposal to give to the New England lines the sum of \$15,000,000 to be pro-rated and raised from the C. F. A. and trunk line carriers.

W. H. Williams of the Wabash, chairman of the joint conference, said after the meeting that nothing had been finally decided and refused to hazard a guess as to what the final outcome would be. He said that several of the important roads were not represented at the meeting, and that therefore it was decided to secure a vote by letter on the final proposals.

It is understood that the proposal for the \$15,000,000 pool is not to interfere with the hearings on the matter of divisions now going on at Washington.

The recommendation of the committee of executives, which was discussed at a meeting in New York on Tuesday, was that a fund of \$15,600,000 be raised by an assessment of a percentage of the earnings of the eastern roads west of the Hudson, to be distributed among the New England roads, for the period from January 1, 1921, to February 28, 1922. On that date the two-year period for which the transportation act fixed the percentage of fair return at 5½ or 6 per cent will expire. The percentage after that time is to be fixed by the Interstate Commerce Commission and the proposed pool is intended to afford the New England lines some temporary relief with a view to a readjustment at that time.



Photo by Keystone View Co.

A Harlem River Dock, New York, with a Crane Which Unloads a Lighter and Loads a Car or Truck in One Operation

The Functions of a Railway Employment Service

Hiring and Following Up of New Employees of Vital Importance and Should Receive Expert Attention

By J. C. Clark

Assistant to General Manager, Oregon Short Line Railroad Company

THE HIRING AND FIRING of employees has been considered by a great many railroad officers as a small and insignificant part of the day's work. While the head of the department very frequently permits or instructs some subordinate to attend to the hiring, he takes care of the firing himself. As a matter of fact, hiring and firing employees are two very essential and very important duties of any supervising officer. In most cases, the hiring is done by each department, and is not handled systematically. Comparatively few railroad officers appreciate the extent to which the selection and placing of employees can be systemized. Furthermore, most railroad officers who have the responsibility of employing men are unable to develop their labor supply properly. As a consequence the ranks are filled up by men who have been rejected from other industries instead of by men who have been selected because they are the best there is.

The Employment Service

In an article in the *Railway Age* of June 18, 1920, I dealt briefly with the subject of employment. It is likewise impossible to discuss this subject fully in the present article, but I shall endeavor to bring out some of the main features. As stated in the previous article, in order to function properly the employment service must be familiar with the requirements of the organization it is to serve, both as to quantity and quality of labor.

Considering first the quantity of labor required. A system of labor turnover reports such as outlined in a former article (*Railway Age* of December 31, 1920), would be of great help after it had been well established, because it would reflect more or less accurately the changes in personnel, due to seasonal work. By comparing the labor turnover figures with the locomotive mileage, it would also be possible roughly to determine the requirements due to increased traffic. When it comes to supplying the daily needs of each department, the employment service can be made most effective. The superintendent of employment should have on his desk every morning a wire report from every department and division, showing not only the labor shortage, but any surplus that may exist. With this information, he can distribute the available supply of labor to the points where it is most needed, and also transfer certain classes of labor from one department or division to another, either temporarily or permanently.

This work of distribution can only be accomplished through a central office, where the superintendent in charge, by consultation with the general manager, can get a broad survey of the requirements of each department or division and make the necessary distribution impartially. Under our present system, it is often the case that the department or division that needs labor most has the smallest supply, while some other department or division has plenty. This may be due to a large number of causes such as different rates of pay, different working conditions, better organization and better treatment in one department than in another, or the difference in geographical location or climate, but a considerable part of this trouble is due to the failure of various employing officers to co-operate by exchanging men as conditions require. This is not surprising, since the management has provided no

systematic method of exchanging information. However, better results can be obtained through a "clearing house for labor" than by a mere exchange of information between employing officers.

Supplying Unskilled Labor

In addition to having a system of reports that will keep the superintendent of employment advised as to the quantity of labor required from day to day and from month to month, it is absolutely necessary to know the quality of labor required. We will consider first unskilled labor. In discussing this question, there are several features to be considered. The first is nationality. The superintendent of employment should have on file a record of the nationality of every gang on the road, so that if a division engineer shows on his daily report a shortage of labor in Gang No. 1, for example, the superintendent of employment will know at once the kind of men to send out to that particular gang.

The employment service must also know the kind of work each gang is doing and when the work of any particular gang is changed it should be advised fully of the change. Most common laborers have a preference for a particular kind of work, and it is always advisable to give such preferences consideration in sending out labor. Another important thing is the steadiness of the employment. Some laborers would be willing to go out for only a short time, while other laborers would not care to go unless the work was steady. In so far as it is possible to do so, the employment service should consider the preferences and desires of the men it employs, and in this way it can build up a reputation for consideration and fair-dealing that will make it much easier to secure labor.

Another big thing to be considered is the opportunities for promotion. While there is a large body of common labor that does not give much consideration to this feature, there is a considerable amount of labor in some sections of the country that would prefer to go to work on a job where there is some chance for advancement.

Employing Skilled Labor

The next question to be considered is that of supplying skilled labor. Before discussing the methods to be used, it is well to discuss briefly the question of supplying men for training schools. Nearly all railroads have a fairly well organized system of apprentice schools in the mechanical department. Some roads conduct training schools for operators, brakemen, firemen, and other classes of employees. It is of the utmost importance that the proper selections be made for these training schools. At the present time, certain educational standards are required, and the applicant is also required to give references. It is doubtful whether or not such references have any real value. A better method is to develop a system of rating each man who enters the service, and determine by observation whether or not he is a desirable employee.

Under the present system of employing skilled labor each foreman or superintendent employs his own men and is familiar with the requirements of each job. It is manifestly impossible for an employment officer to be familiar personally with each job on the railroad. It would therefore be neces-

sary to analyze each job or class of jobs and draw up a specification for each, giving each specification a number or symbol. I will treat this subject of job analysis and specification in a future article.

The discussion so far has covered only the basis or ground work for an employment service and it is apparent that a great deal of preliminary work will be necessary. When it comes to analyzing jobs, as referred to in the previous paragraph, I imagine various foremen and superintendents will discover a good many methods of doing work that they did not know existed and it may be necessary to change present practices in a good many respects. When the officer charged with installing the employment service has completed the ground work referred to, he will no doubt have been able to select men to be used as employment officers.

Functions of the Employment Service

To go back now to the functions of an employment service. These might be stated as follows: first, finding the labor supply; second, selecting from the available supply the right man for the right job; third, introducing each new employee to his foreman, his fellow employees, and to his work; and fourth, following up each new employee to see that he is engaged in the work for which he is best suited, with a view to making desirable changes and transfers, and also as a check on the selection made by the employment office.

Advertising at once suggests itself as a means of getting in touch with labor and it will produce good results if properly directed. As a rule, employers do not resort to advertising until the labor shortage becomes acute. Advertising, however, should be carried on with a view of getting in touch with the most desirable class of labor and inducing this class to enter railroad service. To accomplish this, the advertisement should state in effect that the railroad employs a large amount of labor and give a list of all the most important classified jobs. It should state the opportunities for advancement and should appeal to those interested to write direct to the superintendent of employment or apply to the nearest agent for an application blank.

Every agent or office of the railroad should be supplied with these application blanks. The blank should contain a fairly complete list of the most important jobs and the applicant should be required to check off at least three of the jobs which he would prefer. There should also be space on this blank for the applicant to state his age, nationality, previous experience and give references. This application blank should be mailed direct to the superintendent of employment, either by the applicant himself or by the agent.

When an application of this kind is received, it should be acknowledged at once and if no position is open in the class as checked off by the applicant, he should be so advised. If there are other jobs open that would seem to be suited to him, the applicant should be advised of that fact. If no job at all is open, the applicant should be requested to communicate further at a stated time, one month, two months or three months, in the future. If the applicant does communicate further at the time stated, it is an indication that he is desirous of getting into the railroad service and if there is still no position open, he should be placed on the preferred list and also be put on the mailing list for any railroad magazines or any other literature sent out by the railroad that would maintain his interest in railroad work. By consistently following up a system of this kind, a very much better class of labor can be secured.

There is another part of this work that should not be overlooked. Representatives of the employment service should visit high schools, academies, and colleges along the line and give talks to interest students in railroad work. These talks should be given with the idea of explaining various features of railroad organization and operation and in such a way as to interest not only the students, but the general

public. Such talks will create a better understanding between the public and the railroads and also draw a considerable amount of very desirable material into railroad service.

Selecting the Best Men

The next feature of the employment service is the selection of the best men from the available supply and placing each applicant where he is most likely to succeed or "make good." The process of selection in the first place is one of elimination. The first step is to have each applicant interviewed by a representative of the employment service at the point most convenient for the applicant. After the interview, the employment representative should investigate the references given by the applicant. This will eliminate the obviously undesirable without the necessity of the applicant appearing in person at the nearest employment office. It goes without saying that the employment representative should be a man of wide railroad experience and he should not summarily reject any applicant without some very good reasons and these reasons should be stated in his report to his chief.

The next step is the physical examination. In the interest of public safety all applicants having contagious or venereal diseases must be eliminated at once. However, such physical examinations are well understood and no comment is necessary here.

If the applicant is recommended by the travelling representative of the employment service, and is physically fit, he should be sent to the nearest employment office, where he should be given an interview by men trained for that purpose. Instead of being given an application blank and told to go and fill it out and bring it back again, he is taken into a private room and seated comfortably with the interviewer. The interviewer asks the questions and fills out the application blank. During the conversation, which is carried on in a very friendly manner, the interviewer draws out as much of the family history and experience of the applicant as possible. He also takes pains to explain the policies of the company with regard to promotions, pensions, insurance, or anything else that directly affects the welfare or contentment of the employee. He also explains the necessity for safety, and service to the public.

At the end of the interview, the interviewer should make a brief but lucid statement of his estimate of the applicant's qualifications and abilities. It may be difficult to secure competent interviewers in the beginning, but, by systematic effort, a sufficient number of interviewers can be developed and of course the employment office should always contain men who are in the process of training for this very important work.

Psychologists, phrenologists, and other types of character analysts have devised a large number of tests for which they make various claims. There is no doubt that some of these may be a distinct aid in selecting employees, but they will have to be developed very slowly and it will be impossible to make practical application of these tests at the present time. I would favor, however, the placing of expert psychologists on the staff of the employment superintendent for the purpose of assisting in the training of interviewers, who must be practical men, and in suggesting methods of selection. After all, the chief object to be attained is to place the applicant where he will do the best work and where he will be happy in his employment. The best guide in doing this is the applicant's preferences. It is impossible to build up a perfect organization if any considerable number of the individual employees are discontented. A great many applicants may not know what kind of work they want; others may think they know, but because of lack of experience find that they did not know their own preferences. For this reason, it is necessary to follow the man up after he has entered the service, and see that he is placed where he can do the best work and where he is contented.

Following Up New Employees

First impressions are too important to be left to hit-or-miss methods. When the new employee is ready to go to work, he should be introduced to his immediate superior officer by a representative of the employment service. He also should be introduced to some of his fellow workmen if possible. He should be told what equipment he will need and where he can get it, the practice with regard to pay days, and any other items of information that will help him in the first few days of his employment.

The following up of employees by the employment service after they have actually entered the service is very important, and should be handled systematically. There should be enough representatives of the employment service so that every new employee can be interviewed by one of them within a week. A second interview should take place within three weeks of the date of entering the service. These interviews should develop any misunderstanding the employee may have and will impress upon him the fact that the company is vitally interested in his success and welfare. These interviews should also develop whether or not the employee is satisfied with his work and whether the foreman or supervising officer is satisfied with the new employee. If dissatisfaction does exist, the employment service should take the necessary steps to investigate further and make transfers, or take any other steps to promote harmony and satisfaction.

It will be seen from the foregoing, that the hiring of employees is a specialized subject requiring special study. It is necessary to study the characteristics of each job to be filled and from this information determine what qualifications a satisfactory workman should have for each job. It is also necessary to study methods of getting in touch with desirable men, and devise methods of selecting applicants. At present, employing officers lack the time necessary to make these studies. Interviewing applicants alone requires more time than the employing officers are able or willing to give.

have been chosen because of their knowledge of the work to be done, rather than upon their ability to judge men. Experience in sizing up men and interviewing is an important factor in securing good results, and interviewing is an art requiring both natural ability and careful cultivation. It is practically impossible for the employing officer under present conditions to acquire the experience and get the results that a trained interviewer could.

When it comes to promotions, vacancies can often best be filled by men already employed in some other department. Heads of departments at present are not in a position to know the abilities and qualifications of men in other departments, but a centralized employment service could and should keep a list of likely men in all departments, with a view to filling any vacancy that may occur. Under present conditions department heads might object to releasing a good man to some other department, even though it is a promotion for the man involved. An employment service that had watched the matter closely and kept the proper records, would take into consideration the advantage to the organization as a whole, and the transfer could be effected without friction.

All things taken into consideration, an employment department, organized with the view of giving real service to all departments, is a great aid to the departments and to the organization as a whole.

Freight Car Loading

WASHINGTON, D. C.

THE NUMBER OF CARS loaded with revenue freight during the week ending January 22 showed a slight further decline, to 703,115, as compared with 804,866 in the corresponding week of 1920, 734,293 for 1919 and 668,941 for 1918. The weekly report compiled by the Car Service Division of the American Railroad Association is summarized as follows:

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

Summary—All Districts, Comparison of Totals, This Year, Last Year, Two Years Ago, for Week Ended Saturday, January 22, 1921.

Districts:	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L. C. L.	Miscellaneous	Total revenue freight loaded			Received from connections		
										This year 1921	Corresponding year 1920	Corresponding year 1919	This year 1921	Corresponding year 1920	Corresponding year 1919
Eastern	1921	6,263	3,847	42,111	1,281	7,316	874	41,583	51,114	154,389	190,375	175,441	185,784	205,158	208,576
	1920	5,441	3,964	49,112	3,825	7,453	1,342	33,087	86,151	145,995	162,168	164,342	99,180	116,082	142,544
Allegheny	1921	2,657	4,146	49,857	7,271	3,886	2,559	32,461	43,158	60,019	4,129	27,752	12,854	17,821	18,181
	1920	2,743	3,657	49,112	3,719	3,875	1,647	37,396	60,019	27,752	31,046	29,782	60,152	78,249	63,707
Poconchos	1921	185	118	19,069	185	1,222	100	2,744	4,129	110,839	129,514	106,839	44,694	52,973	69,238
	1920	135	135	19,071	638	1,859	287	141	8,780	97,587	108,257	104,556	45,414	67,117	61,763
Southern	1921	4,277	2,395	24,572	570	13,358	1,243	34,784	29,640	110,839	129,514	106,839	44,694	52,973	69,238
	1920	4,093	2,861	26,559	405	17,906	2,629	23,814	10,247	97,587	108,257	104,556	45,414	67,117	61,763
Northwestern	1921	14,157	10,268	6,555	1,488	14,195	1,153	23,223	26,548	108,808	123,848	100,506	43,562	51,600	44,742
	1920	10,350	9,722	12,871	1,191	15,867	1,786	18,764	37,708	108,808	123,848	100,506	43,562	51,600	44,742
Central Western	1921	14,262	12,403	21,332	282	2,962	1,615	86,896	29,056	108,808	123,848	100,506	43,562	51,600	44,742
	1920	10,400	13,338	24,626	428	5,434	2,570	21,324	46,728	108,808	123,848	100,506	43,562	51,600	44,742
Southwestern	1921	4,894	2,078	4,957	100	6,220	440	14,890	24,159	57,745	60,658	58,127	491,640	589,000	608,751
	1920	4,049	2,720	7,716	161	6,326	339	12,940	25,213	57,745	60,658	58,127	491,640	589,000	608,751
Total all roads	1921	46,695	35,255	168,453	11,177	49,159	7,991	176,581	207,804	703,115	804,866	734,293	589,000	608,751	668,941
	1920	37,211	36,357	189,066	10,367	56,720	10,795	148,466	313,844	703,115	804,866	734,293	589,000	608,751	668,941
	1919	39,038	38,045	176,216	10,367	52,348	15,470	142,181	313,844	703,115	804,866	734,293	589,000	608,751	668,941
Increase compared...	1920	9,484	8,898	78,387	810	12,439	7,196	28,115	74,960	100,751	19,000	97,360	100,360	119,749	119,749
Decrease compared...	1920	1,142	20,613	610	9,361	2,808	176,681	106,940	101,751	101,751	101,751	101,751	101,751	101,751	101,751
Increase compared...	1919	7,657	7,210	91,237	11,177	3,811	7,479	205,377	31,178	31,178	31,178	31,178	31,178	31,178	31,178
Decrease compared...	1919	2,788	7,763	1,177	3,186	7,479	7,479	205,377	31,178	31,178	31,178	31,178	31,178	31,178	31,178

L. C. L. merchandise loading figures for 1921 and 1920 are not comparable, as some roads are not able to separate their L. C. L. freight and miscellaneous of 1920. Add merchandise and miscellaneous columns to get a fair comparison.

As explained before, all promising applicants should be carefully interviewed whether vacancies exist or not, in order to build up a waiting list of desirable applicants. In most cases, under present practice, applicants are not interviewed unless a vacancy exists.

Sizing up men is to a large extent a matter of subconscious impression. Some men are good judges of character, while others are not, and I believe that most railroad officers today

The freight car surplus for the week ending January 23 was 301,997 as compared with 288,115 the previous week and 258,678 during the week ending January 7. For the same week there were scattering shortages amounting to 1,328.

The percentage of freight cars on home roads on January 15 had reached 52.2, or within three-fifths of 1 per cent of the percentage for May 1, 1917.

Operating Statistics for November

The Interstate Commerce Commission has issued a summary of operating statistics for the month of No-

vember, 1920, of roads having annual operating revenues in excess of \$25,000,000, of which the principal items are as follows (including mixed and special train service):

Region and name of road		Freight-service train-miles (thousands)		Net ton-miles (millions)		Net ton-miles per loaded freight car-mile		Car-miles per car-day		Net ton-miles per car-day	
		1920	1919	1920	1919	1920	1919	1920	1919	1920	1919
New England Region:											
Boston & Albany.....	November	288	281	116	124	24.4	21.3	32.2	29.2	514	461
	11 months	3,373	2,935	1,477	1,308	24.8	22.1	27.6	31.7	476	498
Boston & Maine.....	November	634	672	315	321	25.9	23.0	19.0	17.5	334	304
	11 months	7,562	6,625	3,620	3,161	24.6	23.3	16.6	17.6	294	299
New York, New Haven & Hartford.....	November	513	552	258	298	24.5	21.8	13.0	14.1	217	241
	11 months	5,611	5,611	2,827	3,057	23.8	23.2	10.4	14.2	184	248
Great Lakes Region:											
Delaware & Hudson.....	November	401	378	353	310	36.3	34.1	31.6	26.5	708	613
	11 months	4,631	4,090	4,111	3,386	35.4	35.5	27.9	26.6	662	615
Delaware, Lackawanna & Western.....	November	581	477	481	411	29.0	26.7	34.6	30.5	666	577
	11 months	5,748	5,084	4,902	4,614	28.8	29.3	29.2	27.9	589	578
Erie (including Chicago & Erie).....	November	1,179	1,039	1,029	923	30.0	27.7	35.7	35.2	638	653
	11 months	11,914	10,636	10,925	9,749	29.3	28.4	26.0	31.8	529	605
Lehigh Valley.....	November	621	576	547	537	32.8	30.2	28.0	24.5	588	519
	11 months	6,655	5,948	5,949	5,439	31.7	30.5	21.6	23.0	476	492
Michigan Central.....	November	497	569	347	442	23.9	21.9	27.8	20.6	431	350
	11 months	5,764	5,733	4,533	4,224	24.4	21.0	20.4	25.0	368	381
New York Central.....	November	2,176	1,826	2,098	1,698	29.7	23.8	26.4	22.4	491	406
	11 months	22,885	20,606	22,580	19,759	28.3	26.0	22.8	24.2	430	424
Pere Marquette.....	November	348	367	205	224	25.9	24.2	19.6	16.0	349	289
	11 months	3,785	3,753	2,483	2,355	26.4	24.3	16.0	17.9	324	325
Pittsburgh & Lake Erie.....	November	158	127	257	175	42.7	41.6	10.6	9.3	313	273
	11 months	1,418	1,407	2,191	2,022	42.3	41.2	8.6	9.2	250	250
Wabash.....	November	649	557	431	372	26.3	22.6	29.8	26.0	573	491
	11 months	6,452	5,774	4,523	3,790	25.2	23.5	26.9	26.6	528	469
Ohio-Indiana-Allegheny Region:											
Baltimore & Ohio.....	November	2,049	1,777	1,793	1,511	36.1	30.6	23.9	32.4	532	467
	11 months	21,877	18,362	19,978	16,398	34.8	33.1	24.6	23.1	572	500
Central of New Jersey.....	November	334	316	236	206	35.2	32.8	14.7	14.2	316	291
	11 months	3,528	3,343	2,439	2,247	34.1	33.1	13.9	13.6	300	278
Cleveland, Cincinnati, Chicago & St. Louis.....	November	726	696	613	563	31.1	27.2	31.6	27.8	605	546
	11 months	7,823	6,976	6,367	5,880	28.8	27.9	28.4	27.8	547	529
Pennsylvania System.....	November	5,017	4,582	4,536	3,712	36.5	30.5	22.2	19.1	518	417
	11 months	53,875	51,865	47,613	45,434	34.6	35.7	19.9	19.7	462	454
Philadelphia & Reading.....	November	715	592	658	506	39.3	35.0	22.5	16.3	557	423
	11 months	7,097	6,400	6,642	5,970	38.2	37.6	19.7	19.0	507	474
Pocahontas Region:											
Chesapeake & Ohio.....	November	839	710	996	800	42.5	38.1	29.8	26.8	750	620
	11 months	9,454	8,039	11,461	9,451	41.3	40.3	35.6	26.0	895	624
Norfolk & Western.....	November	899	827	987	989	43.8	40.4	31.6	29.8	828	731
	11 months	9,040	8,203	10,764	9,757	41.9	39.6	34.7	29.1	924	715
Southern Region:											
Atlantic Coast Line.....	November	666	669	321	333	22.4	20.5	25.1	22.2	366	340
	11 months	7,559	7,214	3,530	3,327	21.6	21.3	23.1	20.9	341	307
Illinois Central.....	November	2,011	1,411	1,460	936	32.3	24.5	41.8	28.9	809	525
(Including Yazoo & Mississippi Valley).....	11 months	21,459	16,283	16,048	12,155	29.5	26.7	41.2	32.5	815	603
Louisville & Nashville.....	November	1,530	1,462	798	733	31.7	27.6	29.1	25.4	567	496
	11 months	17,275	15,874	9,191	8,330	30.3	29.0	30.9	25.5	621	508
Seaboard Air Line.....	November	416	396	217	223	23.7	22.4	23.7	21.5	404	359
	11 months	5,039	4,271	2,629	2,157	23.1	22.0	22.2	20.6	371	325
Southern.....	November	1,434	1,296	701	694	25.7	21.1	24.8	22.4	397	366
	11 months	16,333	12,506	8,677	6,670	23.7	22.0	23.8	20.7	409	341
Northwestern Region:											
Chicago & North Western.....	November	1,769	1,546	948	634	27.9	18.4	22.8	19.4	397	251
	11 months	19,166	16,540	10,734	9,136	26.0	24.0	21.8	20.2	381	327
Chicago, Milwaukee & St. Paul.....	November	1,726	1,715	1,011	999	26.4	23.3	30.4	24.7	489	405
	11 months	19,105	18,564	12,187	11,808	25.4	24.6	26.4	26.8	465	462
Chicago, St. Paul, Minneapolis & Omaha.....	November	352	392	150	185	24.3	25.1	24.6	23.3	389	382
	11 months	3,838	3,526	1,733	1,619	23.9	23.7	22.5	21.1	400	345
Great Northern.....	November	1,182	1,238	835	791	29.3	27.5	28.6	25.8	535	469
	11 months	11,400	10,750	8,989	8,378	28.8	28.6	27.8	23.5	548	459
Minneapolis, St. Paul & Sault Ste. Marie.....	November	642	678	321	318	24.2	20.9	27.5	30.4	417	446
	11 months	6,345	6,041	3,404	3,116	23.6	22.4	27.1	24.7	474	407
Northern Pacific.....	November	1,072	1,109	716	742	27.6	25.9	35.0	33.2	567	576
	11 months	10,911	10,393	8,296	7,800	27.3	26.7	33.9	27.6	661	525
Oregon-Washington R. R. & Navigation Co.....	November	242	236	148	147	27.8	24.1	27.6	30.2	514	542
	11 months	2,748	2,383	1,912	1,608	28.2	26.1	30.0	27.0	647	532
Central Western Region:											
Atchison, Topeka & Santa Fe.....	November	1,877	2,018	1,025	1,174	22.9	21.5	37.8	35.4	530	531
	11 months	20,004	18,668	11,858	10,884	22.7	21.9	33.6	29.2	520	448
Chicago & Alton.....	November	339	295	200	144	29.4	22.9	23.3	28.4	431	457
	11 months	3,813	3,468	2,175	1,937	27.1	25.9	23.3	22.6	421	378
Chicago, Rock Island & Pacific.....	November	1,391	1,379	698	682	25.5	23.5	29.8	20.9	513	366
	11 months	15,887	14,210	8,142	7,114	24.5	23.5	26.8	24.2	472	411
Chicago, Burlington & Quincy.....	November	1,922	1,654	1,384	1,089	30.0	24.6	33.5	26.3	599	458
	11 months	19,625	17,266	15,148	13,010	28.6	26.7	31.9	27.4	616	498
Denver & Rio Grande.....	November	352	350	201	203	28.0	26.3	21.0	21.1	382	378
	11 months	3,357	3,047	2,042	1,773	29.3	28.5	20.2	15.5	405	297
Oregon Short Line.....	November	425	438	273	242	30.3	24.8	38.7	43.2	725	705
	11 months	4,686	4,141	3,245	2,700	29.4	27.1	45.7	35.1	932	664
Southern Pacific.....	November	1,295	1,277	815	911	26.1	25.6	36.6	36.1	620	672
	11 months	14,019	12,439	9,494	8,754	25.3	25.5	35.4	33.5	635	593
Union Pacific.....	November	1,466	1,366	871	848	26.4	24.4	65.1	61.0	1,070	1,061
	11 months	14,004	12,532	9,230	8,278	24.5	23.5	72.0	58.9	1,265	979
Southwestern Region:											
Missouri, Kansas & Texas.....	November	335	327	182	198	25.6	24.4	27.8	27.9	404	470
	11 months	3,608	3,408	2,083	1,871	24.0	23.4	28.4	24.9	417	360
Missouri, Kansas & Texas of Texas.....	November	292	263	136	99	25.7	23.0	20.1	13.1	319	214
	11 months	2,988	2,908	1,312	1,133	24.7	23.5	17.8	13.2	287	198
Missouri Pacific.....	November	1,178	1,091	748	653	28.2	24.7	22.9	22.9	462	428
	11 months	12,928	11,474	8,360	6,905	27.0	25.2	22.9	21.9	458	402
St. Louis-San Francisco.....	November	514	886	401	399	26.9	25.3	21.2	20.4	376	354
	11 months	10,417	9,153	4,563	4,114	25.9	25.0	21.1	19.1	372	327
Texas & Pacific.....	November	39	340	170	49	25.7	22.9	22.8	17.1	365	350
	11 months	5,722	3,811	1,810	1,669	23.4	22.9	21.9	19.0	336	304

Rails from Sink-Head and Ordinary Ingots Compared

Studies Made by Bureau of Standards Demonstrate Superior Soundness of the Special Steel

THE UNITED STATES BUREAU OF STANDARDS has completed a study of some ingots made by the sink-head process with other ingots poured according to the usual method. The object of this investigation was to determine the relation of ingot practice to the properties of rails from such ingots and in particular the amount of total discard necessary to obtain rails free from piping and segregation above 12 per cent which had been rolled from steel made in accordance with varying melting, casting and ingot

and service tests as a measure of wearing qualities showed no advantage for the Hadfield rails, but as these concern qualities dependent on chemical composition and other phases of manufacture, they have no bearing on the object of the investigation which was to determine the possibility of eliminating hidden defects in rails.

A consignment of 35 ingots made by the converter process at Hadfield's, Sheffield, England, and cast by the sink-head process with large end uppermost were shipped to Sparrows Point, Md., and rolled into rails in comparison with 15 rail ingots made in the ordinary manner with the small end uppermost. Each sink-head ingot, of about 5,300 lb. weight, and deoxidized with aluminum in the mold, represented a separate heat of converter steel and all the heats and ingots were made in the same manner. The composition and properties of these ingots were of remarkable uniformity. The comparison ingots (Maryland Steel Company) weighed 7,300 lb. each and were from three separate open-hearth heats, an additional variation being made in the open-hearth and casting practice for each. Five ingots were selected from each of these three heats. Thus, in reality, comparison was made of four different kinds of steel of very nearly the same composition and physical properties and of two types of ingot form.

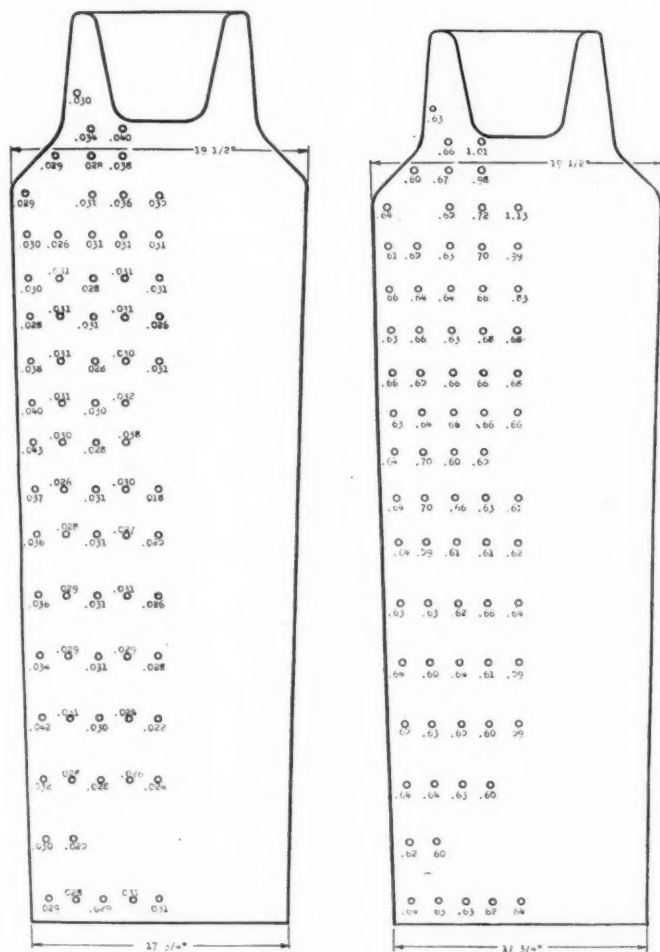
The comparison was made by rolling most of the ingots into rails and taking test specimens at each rail cut, as well as from a considerable portion of the upper part, in five-foot steps, of the rail bar from each ingot. In this way there was obtained a detailed physical, chemical and metallographic survey of each ingot, and it was possible exactly to delimit the regions of sound and homogeneous from those of unsound and segregated steel. Two complete sink-head ingots were cut longitudinally and examined, as well as representative blooms from both sink-head and ordinary ingots.

The results obtained indicate a decided superiority of the sink-head ingots over the comparison ingots as made of three grades of steel, although the sink-head ingots suffered from the disadvantage of having gone cold before rolling. The Hadfield type of ingot required a total discard of only 18.4 per cent on the average (13 per cent top discard to eliminate piping and segregation above 12 per cent) while the average ingot of the ordinary type for rails required a total discard of 43.9 per cent (26 per cent top discard), with great variations dependent upon the furnace and ingot practices.

It was established in the tests that after removal of the top discard of 13 per cent, the Hadfield type of sink-head ingot is free from piping and undue segregation. The ordinary type of ingot, cast small end up without a sink-head as is usual for rail ingots, requires an average top discard of 26 per cent and the remainder of the ingot is liable to contain enclosed piping and excessive segregation. Defective rails, from the middle and bottom portion of the ingot, are not detected with certainty by means of existing rail specifications and as a result of this uncertainty, rails containing pipes or excessive segregation may get into service with disastrous results.

The surface condition of the rails from the sink-head ingots was not as good as for the ordinary ingots, but this is not considered an essential characteristic of rails from such ingots.

In the drop tests, blows were given on the head of the



Percentage of Phosphorus (left) and Percentage of Carbon (right) at Various Positions in a Hadfield Ingot

practices. This investigation has extended over several years, the rails made from the ingots being rolled in 1915. The experiments were made at the Maryland steel plant at Sparrows Point, Md., now the property of the Bethlehem Steel Corporation, under the direction of Dr. George K. Burgess, chief of the division of metallurgy of the bureau; A. W. Gibbs, chief mechanical engineer of the Pennsylvania System, and F. W. Wood, then president of the Maryland Steel Company.

The tests confirm the conclusions reached with earlier experiments, namely, that the use of the sink-head ingot insures much greater soundness and freedom from segregation. A much smaller discard from the top of the Hadfield ingots sufficed to eliminate piping. Drop tests for ductility

rail to destruction, the deflection was measured by each blow, the elongation for each inch over 6 in. and the total elongation was noted. The drop-test piece was taken from near the top of the ingot and in each case was the first five-foot length of rail immediately after reaching physically sound steel, i. e., free from pipe, and in the case of the rails from sink-head ingots also below the bottom of the sink-head. Of the 14 comparison rails none broke under four or five blows (six rails were nicked and broken after the fourth or fifth blow) while for the 35 Hadfield rails the range was two to seven blows, there being nine of four blows and four of three blows; only 22 or 63 per cent of the rails from sink-head ingots withstood four or more blows. The ductility as measured by the deflection and elongation is also somewhat greater and more uniform for the comparison rails.

The greater ductility and more uniform behavior under the drop test of the steel from the comparison ingots would appear to be due more to the chemical composition and especially to the nickel and chromium content of the Mayari steel than to any factor traceable to manufacture.

The Pennsylvania system through Mr. Gibbs submitted a report on the rails from this and earlier investigations from which the conclusion was reached that—"There is evidently no economy in the Hadfield process as regards wear, and it would require a much more extended trial to determine the relative freedom from failure."

It would appear, however, to be unfair to draw any general conclusions as to performance in service from so few rails as this investigation furnished, although it would not be expected that the Hadfield type of sink-head ingots would furnish any rails showing structural defects. While it is not claimed that the use of the sink-head process for the manufacture of ingots will solve all rail problems, it is maintained that its adoption would be a step in the direction of the elimination of rail failures.

I. C. C. Orders Increase in Illinois Freight Rates

WASHINGTON, D. C.

THE FIRST DECISION rendered by the Interstate Commerce Commission ordering advances in intrastate freight rates to correspond with those which it had authorized for interstate traffic in Ex Parte 74 was handed down by the Interstate Commerce Commission on January 28 in the Illinois case. It had previously ordered increases in state passenger fares in Illinois and several other states, but that part of the Illinois case relating to freight rates was reserved for separate decision. For interstate traffic in Illinois the Interstate Commerce Commission had applied the 35 per cent advance allowed to the western roads in some instances and the 40 per cent advance to the eastern district in others. The Illinois Public Utilities Commission had prescribed for intrastate traffic a scale of rates which it stated would result in increases not exceeding 35 per cent, but which the carriers asserted would yield less than 33 1/3 per cent. The commission finds, however, that the state rates are unduly preferential of intrastate traffic and prejudicial to interstate traffic and increases corresponding to the interstate increases were ordered to be made effective on or before March 7 upon not less than five days' notice. The report by Commissioner McChord, after a general discussion of the conditions, said in part:

All the Illinois carriers involved are engaged in the handling of both state and interstate traffic. Generally the same train and often the same car that carries the intrastate traffic carries the interstate traffic.

When individual manufacturers, jobbers, and dealers in these cities outside the state draw their coal, for instance, from Illinois

mines they must pay relatively greater increases than their competitors just across the border in Illinois, and in shipping their goods into Illinois they must pay relatively more than the Illinois distributors. Thus, a double rate disadvantage is put upon the interstate shipper and his locality. As every business man knows, a competitor must often, if not generally, absorb the difference in freight rates against him or withdraw from the field. That such differences are prejudicial is a matter of common knowledge.

One of the most important instances of discrimination is found in the Chicago industrial district, which includes not only territory in Illinois in and about the city of Chicago, but reaches across the state line into Indiana, embracing such points as Gary, Indiana Harbor, and Hammond, with their great steel mills and other industries. These industries, when they located in these outlying districts, did so with the distinct understanding that they would forever be treated, from a rate standpoint, like all other points in the Chicago district, as though they were located within the city of Chicago. That is, Chicago rates were to apply to and from the entire industrial district. This arrangement had been adhered to in good faith for many years, but on August 26, 1920, the date on which the increases were made effective on both state and interstate traffic, the long-standing parity was destroyed, so far as traffic to and from points in Illinois was concerned, by the carriers increasing the rates between the Indiana points in the Chicago district and all stations in Illinois 40 per cent, under our finding, and between the Illinois points in that district and all stations in Illinois a lower percentage, under the Illinois commission's finding. That this treatment of the Indiana cities puts a cloud on their prospects and injures the ability of their industries to do business in Illinois against competitors favored by lower rates intrastate can not be denied.

St. Louis, Mo., and East St. Louis, Ill., are practically one community, yet the former's rates to and from points in Illinois have been increased 40 per cent and the latter's materially less. The effect, of course, is similar to that in the Chicago district. For instance, prior to August 26 the rates on coal from the Illinois mines to St. Louis were but 20 cents per ton higher than to East St. Louis, but since that date they have been 34 cents higher, not because of any change in conditions of transportation, but because the Illinois commission's judgment as to what was a reasonable increase happened to be different from ours.

Situations such as above described can be found at various points around the borders of the state.

Disparities between Illinois intrastate rates to and from Chicago and interstate rates between Illinois points and St. Louis were the subject of litigation in *Business Men's League of St. Louis v. A. T. & S. F. Ry. Co.*, 44 I. C. C., 308, wherein we found that the then existing adjustment was unduly prejudicial to St. Louis. The present rates present a similar situation.

In *Illinois Classification*, *supra*, it appeared that Indiana jobbers were shipping into Illinois in competition with Illinois shippers, but were confronted with relatively higher rates than were paid by their Illinois competitors to points in the same state. Except as to commodity rates in general, the situation was remedied as explained earlier in this report, but a similar difficulty has now been created.

Certain routes from Illinois coal mines to Illinois destinations are interstate while others are intrastate. Prior to August 26 the rates in most instances were the same via the different routes, but since that date the interstate rates from a given mine or group of mines are higher than the intrastate rates. The result is that interstate traffic has been practically destroyed by the coal being diverted to the intrastate routes. In other words, the intrastate business increases while the interstate traffic decreases. By the same token the intrastate rates jeopardize the interstate rates in that the interstate carriers must make the intrastate rates the measure of their interstate rates in order to secure part of the business.

The various rate situations hereinbefore described are cited as examples. Others of the same general character are shown by the record, and many others could be found. The contention is made by the Illinois interests that we should limit any finding of undue prejudice to the localities specifically shown to be affected. To our views upon the law of the case as expressed in our previous report herein and in *Rates, Fares and Charges of N. Y. C. & H. R. Co.*, 59 I. C. C., 290, we may add that the instances pointed out are merely typical of a condition that is general. The rates to and from the various points on any given commodity, both state and interstate, local and joint, are closely related and interrelated, and the creation of material differences between them is subversive of established and sound economic and commercial conditions, resulting in a situation which could not reasonably be approved.

The Illinois commission points out that there are some instances where individual intrastate rates in that state, even with the lesser increases allowed by it, happen to be as high as or

higher than those applicable interstate for equal distances; but it is not claimed that this is true of the general body of rates. The application of lower rates intrastate in Illinois than for similar hauls interstate in the Illinois district and central territory is general, and even with increases in the amounts allowed by us in *Increased Rates*, 1920, and *Authority to Increase Rates*, *supra*, the intrastate rates on most of the important articles of traffic in Illinois would still be lower than the interstate rates in central territory. The differences are due in large part to the failure of the Illinois commission to grant the same increases in recent years as have been authorized by us.

Evidence was offered by the Illinois commission as to traffic density, showing that the western and southern lines have a density in Illinois much greater than the average on their entire systems and greater than the eastern lines have in Illinois. The figures for Illinois do not represent merely intrastate traffic, but all traffic that moves within, into, out of, or through the state. The traffic density on the eastern lines in Illinois is, in general, much less than on their entire systems, and the figures do not indicate to us that Illinois should have a lower basis of rates than obtains in the territory east thereof.

The Illinois commission also points out situations arising from the 40 per cent increase in the Illinois district as compared with the 35 per cent increase between Illinois and points in western territory and the 33½ per cent increase between Illinois and southern territory, pursuant to *Increased Rates*, 1920. The rate from Chicago to Davenport, involving a haul entirely within the Illinois district, takes an increase of 40 per cent, whereas, from Chicago to points in Iowa, just west of Davenport, and in competition with it, the increase has been but 35 per cent, thus lessening the rate difference that formerly existed in favor of Davenport. Rates on coal from Kentucky fields to Illinois points, involving hauls from the southern territory into the eastern territory, were increased 33½ per cent, as against the increase of 40 per cent sought within Illinois. These situations are considered by that commission as justifying an intermediate percentage increase intrastate in Illinois as a border state. Situations of the kind cited are, of course, general and can be found at all points along the northern, western and southern borders of the Illinois district and, in fact, at any place in the country where any two of the rate groups fixed in *Increased Rates*, 1920, *supra*, adjoin. The difficulty could have been avoided only by a horizontal increase for the entire country. This was recognized in our report.

Some readjustments may be appropriate in individual instances where substantial injury results. An approval of the Illinois commission's rates would mean the approval of lower rates in Illinois, and, indirectly, lower rates perhaps west of the Mississippi River, than in official classification territory. Such inequalities as call for readjustment may be brought to our attention in the appropriate way and dealt with as occasion requires.

After the Illinois commission's first order was issued the Public Service Commission of Indiana rendered its report on an application for increases to the extent authorized by us. The Indiana commission declined to grant such increases and expressly indicated in its report that it was controlled by the action of the Illinois commission and by the existence of lower intrastate rates in Illinois than in Indiana. In other words, the Indiana commission felt that in justice to the citizens of Indiana it could not permit higher rates within that state than applied within the state of Illinois. It requires no stretch of the imagination to realize what would be the situation if every state in the Union would take similar action, savoring of reprisal and retaliation, thus requiring the imposition upon interstate traffic of unreasonably disproportionate increases in order to insure the prescribed return. It was just such a situation that Congress sought to prevent when it enacted the statutory provisions with which we are here concerned.

Upon this record we find no conditions within Illinois so different from those affecting interstate traffic as to justify the present differences in rates. Illinois intrastate traffic is not contributing its just proportion of the revenues of the carriers, measured by the statutory rate of return "upon the aggregate value of the railway property of such carriers held for and used in the service of transportation." The record establishes that the present intrastate charges for freight services and for the transportation of milk and cream by the steam railroads subject to our jurisdiction and by the Chicago, Lake Shore & South Bend and the receiver of the Aurora, Elgin & Chicago on the third-rail division of that line, in Illinois, lower than the just and reasonable corresponding interstate rates and charges authorized in and established in the eastern group, including the Illinois district, pursuant to Ex Parte 74, afford intrastate traffic and shippers and localities within the state undue preference and subject interstate traffic and shippers and localities outside the state to undue prejudice, and unduly, unjustly and unreasonably discriminate against interstate commerce.

We are of opinion and find that to remove the unlawful prefer-

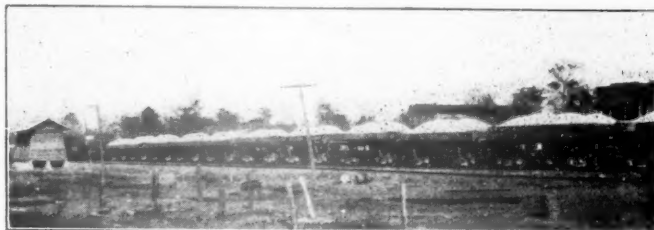
ence, prejudice and discrimination found to exist, charges for freight services and rates for the transportation of milk and cream intrastate in Illinois, in effect August 25, 1920, should be increased in amounts corresponding to those authorized in *Increased Rates*, 1920, and *Authority to Increase Rates*, *supra*, with respect to the interstate rates and charges in the eastern group and including the Illinois district. These findings shall not, however, be construed as prohibiting the restoration or establishment of proper differentials as between coal mines in Illinois and Indiana.

Commissioners Hall, Eastman and Potter dissented but did not file a dissenting opinion.

Highway Constructors Supply Cars to Railroads for Hauling Stone

THE CURTAILMENT of road construction as a consequence of car shortage and the restriction placed on the use of open-top cars resulted in the adoption of an interesting expedient by two Arkansas highway districts. Rather than hold up the work or attempt the use of motor trucks over a long road haul, the two road districts bought some air-dump cars which they furnished to the railroad for hauling the road materials in regular revenue service.

Crittenden county, Ark. (opposite Memphis, Tenn.) has



The Cars Were Handled in Solid Trains

undertaken a very extensive road building program at an estimated cost of several million dollars, covering the construction of between 200 and 300 miles of gravel roads. The supply of gravel being at Chaffee, Mo., 175 miles away, the problem of transportation became vital and the car shortage threatened to interrupt the work. In this emergency 105 Western air dump cars of 20-cu. yd. capacity and conforming to M.C.B. requirements were purchased from the United States War department and by arrangement with the St. Louis-San Francisco, these side dump cars are being operated



Storage Piles Were Built at a Dozen Convenient Places

in solid trains of about 35 each, between the gravel pit and the work, a distance of 175 miles. The railroad receives the regular tariff rates for the material hauled but allows 0.6 cents per mile for the use of the equipment. The plan was to build up storage piles of gravel in about a dozen places convenient to the roads from which the material could be taken to the work in motor trucks. These storage piles were about 800 ft. long and were built to heights of 20 to 30 ft. at the extreme end. This required the building of about

1,200 ft. of sidings at each pile, the expense of which was entirely justified by the results.

One advantageous feature of this experiment, from a railroad point of view, is the speed with which the trains of dump cars are being moved, a round trip of 350 miles, including the time consumed in loading and unloading, being made in three days. The train of gravel leaves the pit in the evening and arrives at its destination at about noon of the following day.

One of the problems to be solved was the manner of forming the fill so that the dump cars could operate most effectively from an elevation. It was planned at first to build up a fill to a height of several feet from which the cars could be dumped in the ordinary way. This was found to be unnecessary. At each storage pile the siding was laid on the natural ground surface and the cars were dumped from that. This gravel then was worked under the ties and the track gradually jacked-up until the proper elevation was secured. The fill then was widened in the usual way to the full width planned for the pile at the base. This having been accomplished, another lift was made at that point and then widened back to the other side, where the operation was repeated, and so on. This work could be expedited by the use of a spreader car on the fill.

The use of dump cars for hauling has proved satisfactory in every way. The road district is getting a constant supply of material and the railroad is getting a profitable business without diverting a single car from the necessary coal hauling service. In analyzing this problem with a view to its application to other projects, it should be assumed that 30-cu. yd. dump cars are being employed. In the case in point, the 20-cu. yd. cars were used for the simple reason that they were available when needed. It is obvious, however, that larger cars could be operated with greater economy. Allowance can also be made for some reduction in the cost of the material by the quarry or gravel men in consideration of the regular car loading schedule made possible by the use of the privately owned equipment. In view of the frequent suggestion for the use of highway motor trucks for the hauling of road materials in lieu of regular railway transportation, the results secured by the Arkansas road districts are worthy of careful consideration.

Railway Business Association Annual Dinner on March 31

PRESIDENT ALBA B. JOHNSON announces that the annual meeting and dinner of the Railway Business Association will be held at the Waldorf-Astoria Hotel, New York, on March 31. The speaking program for the dinner will consist of addresses by Daniel Willard, chairman of the American Railway Association for the railways and Edgar E. Clark, chairman of the Interstate Commerce Commission, for the government.

Mr. Johnson in his announcement says:

"Events current and to come in the world of railway transportation are vividly reflected in the distinctive features which mark the 1921 program for our annual meeting. We have always proclaimed that the primary aim of the Railway Business Association, while identical with the public interest, was the welfare and prosperity of the industry and trade which are cognate to railway operation and development. Both at our business sessions and at our dinner this policy of enlightened selfishness will be more clearly defined than in any previous year.

"Formerly the business sessions were restricted to an account of stewardship and election of officers. Conditions have complicated our work and our convention. In 1921 the members will discuss reports of several standing com-

mittees, each of which has for several months been conducting a labor of research, conference and discussion in a field essential to the preservation of the railway supply guild as a strong and progressive arm of rail transportation.

"Since our last dinner it has become evident that during the next three or four years the people of the United States will determine whether they are to be served with transportation through individual initiative of citizens or through a government agency. The answer will depend upon the satisfaction or dissatisfaction of the public with the service given them by the railway corporations under the Transportation Act of 1920. A vital fact in public satisfaction or dissatisfaction with service will be the operating economies through which net income may be made and kept adequate. The railway supply world is on the one hand a source from which a large part of such economies must come through mechanical advance. Our industry on the other hand is certain to dwindle and vanish as a constructive force if the railways themselves fall under the deadening hand of the government. In such a juncture our dinner platform will be occupied by the two men whose official position is that of leadership in solving the problem.

"Daniel Willard, president of the Baltimore & Ohio, is chairman of the advisory committee of the Association of Railway Executives, and chairman of the American Railway Association. He embodies the contact of the railways as a whole with the public and with the government. He is to define the problem from the point of view of the carriers: what must they do, what must they have, to be preserved?

"Edgar E. Clark is chairman of the Interstate Commerce Commission, whose function under the Transportation Act is to fix such rates, if management be honest, efficient and economical, as will as near as may be yield to each railway group a net railway operating income of 5½ per cent to 6 per cent upon the value of railway property devoted to transportation; and after March 1, 1922, to determine also what rate of income is requisite to afford service and increase of facilities adequate to the public need. Mr. Clark is to set forth the difficulties with which the commission is beset and the responsibilities of all concerned as he views them.

"These addresses will go to the heart of the railway supply guild's problems."

In order to reduce the unwieldy size of the assemblage and promote the comfort and satisfaction of the diners, a limit is placed upon the number of seats which will be allowed to any subscriber. Each member company is entitled to subscribe for not exceeding 10 seats plus one additional seat for each "plural" member. Since the number of memberships which a member company may carry is limited by the by-laws to five (four "plural"), the maximum dinner subscription is for 14.

Valuation Hearing

HEARINGS on the bill to amend the valuation act to eliminate the requirement that the Interstate Commerce Commission shall ascertain the cost of acquisition of land were resumed before the House Committee on Interstate and Foreign Commerce on January 28. W. G. Brantley, representing the President's Conference Committee on Valuation, opposed the bill on the ground that a railroad must pay more than the acreage value of land whether it is acquired by purchase or by condemnation. The carriers are not contending, he said, for an excess value of their lands; all they want is the present value. The controversy comes up over what constitutes present value. The acreage value of adjacent lands, he said, is not the value of railroad lands. Never yet has a railroad been able to buy a strip out of a farm at the acre-

age value. The act as it now stands directs the commission in the determination of land values to ascertain what they cost the railroad and what it would cost today to acquire them if they did not have them, and then to determine their present value. Instead of expediting the valuation, Mr. Brantley said, the passage of this bill would delay it, because if Congress shall assume judicial functions and undertake to prepare the formula by which railroads shall be valued and determine to omit the cost of reproducing the land property, and if valuations are made under that formula and the courts continue to adhere to what they have been repeatedly deciding, the valuation will all come back to be remade. To authorize the commission not to assemble all the facts relating to the cost of reproduction of railroad property, he said, would be to inject an entire new theory of valuation into the proceedings.

Representative Dennison of Illinois said that in his state a large part of the cost of acquiring railroad right of way is represented by the damages it is necessary to pay to the owners of adjacent land, and asked if this cost would be excluded by the provisions of the bill. "Every dollar of it," said Mr. Brantley. "That is the purpose of the bill."

In reply to the statement by Chief Counsel Farrell of the Interstate Commerce Commission that the commission would undoubtedly allow as much as the railroads had ever paid for their land, Mr. Brantley said that the commission has served 55 tentative valuations and three so-called final valuations, and in not a single instance has it allowed for anything but the mere acreage value of adjacent land. It has also tendered to the carriers many separate land reports which do not make any allowance for the cost of acquisition. Mr. Farrell had objected that the commission could do nothing but estimate the cost of acquisition, and that it would be a farcical procedure. Mr. Brantley said that such an assertion is "grotesque" because it amounts to saying that the commission, with all its experience and its expert organization, cannot do what petit jurors are doing every day all over the land in condemnation proceedings. He said the commission's report as to the present value of adjacent land is only an estimate based on the consideration of all the available information and that to report the additional cost of acquisition would require no more of an estimate.

Samuel W. Moore, general counsel of the Kansas City Southern, made a similar argument on behalf of the Association of Railway Executives, saying that the purpose of this bill is to halt the proceedings now in progress before the commission to ascertain the cost of acquisition and damages. Its passage would be a specific direction to the commission to eliminate from the valuation all evidence on condemnation and damages and give no consideration whatever to that factor. It costs two or three times the value of adjacent land to acquire railroad right of way because of the damages to adjacent land. The commission in its valuation thus far has ignored the cost of acquisition and assigned to railway right of way only the value of adjacent land.

John E. Benton, general solicitor for the National Association of Railway and Utilities Commissioners, advocated the passage of the bill, saying that railroad rates have reached the limit of what the traffic will bear, and any further advances in order to pay returns on increased values which would be created by the inclusion of fictitious elements would result in disaster to the commerce of the country. He claimed that the inclusion of an estimate of the present cost of condemnation and damages in excess of the original cost or present value in the rate value of railroads would increase the aggregate value on which the return under the Esch-Cummins bill would have to be earned by several billion dollars, and would be a gross

injustice to the public. This valuation, he said, ought to be made in such a manner that it will command the confidence of the country and settle the question of what the railroad properties are worth. Generally speaking, in spite of the conspicuous examples the other way, he said, he thought the carriers will be found to have properties which will sustain their capital accounts. If this be true, it will be to their lasting interest to settle that fact to the satisfaction of the country. That cannot be done by any valuation which includes estimates in excess of present value based upon a fiction that the roads are non-existent and their lands would have to be obtained by condemnation today.

Substitute for Clayton Law Reported

WASHINGTON, D. C.

THE SENATE COMMITTEE on interstate commerce on January 28 reported favorably the bill proposed as a substitute for Section 10 of the Clayton law, as amended in accordance with the suggestions of the Interstate Commerce Commission. The bill was based on the one originally introduced by Senator Frelinghuysen, by request, which was drafted by the Association of Railway Executives, but was reintroduced with the amendments by Senator Townsend as a new bill, S. 4933. The Townsend bill provides as follows:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That the Interstate Commerce Act be, and the same hereby is, amended by adding thereto a new section, numbered 20b, which shall read as follows:

"SEC. 20b. (1) That as used in this section the term 'carrier' means a common carrier by railroad which is subject to this Act, or any corporation organized for the purpose of engaging in transportation by railroad subject to this Act or any owner of a railroad engaged in interstate commerce as defined in this Act.

"(2) After sixty days from the date when this section becomes effective no carrier shall have any dealings in materials, supplies, or other articles of commerce, or shall make any contracts, or have any contracts made, after December 31, 1920, for construction or maintenance of any kind, to the amount of more than \$100,000 in the aggregate in any calendar year with another corporation, firm, partnership, or association not a common carrier, railroad company, terminal company, or joint facility company that is subject to section 20 of this Act when said carrier shall have as a director, president, manager, purchasing or selling officer, or agent in the transaction, any person who is at the same time a director, manager, purchasing or selling officer, or agent in the transaction of, or who has any substantial interest in, such other corporation, firm, partnership, or association unless and except such dealings or contracts shall be with the bidder whose bid is the most favorable to such carrier, to be ascertained by competitive bidding under regulations from time to time prescribed by rule or otherwise by the commission.

"(3) No carrier shall, when it has upon its board of directors, or as its president or manager, any person who is at the same time a director, president, or manager of another carrier, charge such other carrier for materials, supplies, or other articles of commerce a price in excess of that at which such articles are concurrently charged out by it for its own use, with the addition thereto of proper transportation charges.

"(4) No bid shall be considered unless the name and address of the bidder or the names and addresses of the officers, directors, and managers thereof, if the bidder be a corporation, or of the members, if the bidder be a partnership, firm, or association, be given with the bid.

"(5) Any person who shall, directly or indirectly, do or attempt to do anything to prevent anyone from bidding, or who shall do any act to prevent free and fair competition among the bidders or those desiring to bid, shall be punished as prescribed in this section in the case of an officer or director.

"(6) Every carrier having any such dealings or making any such contracts required hereby to be made by competitive bidding shall, within thirty days after making the same, file with the commission a full and detailed statement of the transaction, showing the manner of the competitive bidding, who were the bidders, their names and addresses, and the names and addresses of the directors and officers of the corporations and the members

of the firms or partnerships bidding; and whenever the commission shall, after investigation or hearing, have reason to believe that the law has been violated in and about the said transactions, it shall transmit all papers and documents and its own views or findings regarding the transactions to the Attorney General.

"(7) After this section takes effect, it shall be unlawful for any officer, director or agent of a carrier to receive, directly or indirectly, any benefit or profit or any money or thing of value in respect to the negotiation, hypothecation, purchase, or sale by the carrier of any stocks, bonds, or other evidences of interest or indebtedness issued by a carrier or noncarrier corporation.

"(8) After this section takes effect every carrier that is a party to the hypothecation, purchase, or sale of or other dealing in any stocks or bonds issued by a carrier or noncarrier corporation shall within twenty days after such hypothecation, purchase, sale, or other dealing report to the commission in such form and detail as the commission may require the particulars of the transaction.

"(9) If any carrier shall violate this section, it shall be fined not exceeding \$25,000; and every director, agent, manager, or officer thereof who shall have knowingly voted for or directed the act constituting such violation, or who shall have knowingly aided or abetted in such violation, shall be deemed guilty of a misdemeanor and shall be fined not exceeding \$5,000, or confined in jail not exceeding one year, or both, in the discretion of the court.

"SEC. 2. That section 10 of an Act entitled 'An Act to supplement existing laws against unlawful restraints and monopolies, and for other purposes,' approved October 15, 1914, be, and it is hereby, amended by adding thereto a new paragraph, which shall read as follows:

"The provisions of this section shall not apply to carriers, corporations, or owners of railroads that are subject to section 20b of the Interstate Commerce Act."

Heavy Switching Locomotives for the Grand Trunk

THE CANADIAN Locomotive Company, Limited, of Kingston, Ontario, have recently completed and delivered an order for ten heavy type eight-wheel switching locomotives for the Grand Trunk system. These engines were designed for the heavy switching service at Toronto and

and the latest type of butterfly fire door have been applied.

The weight of these locomotives is 242,750 lb., the factor of adhesion is 4.64 and the maximum tractive effort is 52,300 lb. The cylinder and valve chambers are bushed with Hunt-Spiller gun iron; also, the piston packing and valve rings are of the same material. The steam distribution is controlled by a 12-in. piston valve of the railway company's standard type, used in connection with the Young valve gear, which has proven very successful on this railway. The Ragonnet type B power reverse gear is also applied.

The main frames are 6 inches wide and each cast in one piece, in accordance with the McNaughton process. The main axle is equipped with the Robb-McGarvey extended driving box journal 20 in. long, and all driving boxes are fitted with Franklin adjustable wedges; also Smith's adjustable hub liners are fitted to all driving wheels. Henery automatic grease cups are applied to all rods. Franklin radial buffers and unit safety draw bars are used between engine and tender. Barco flexible joints on air pump piping and Barco flexible connections between engine and tender are applied.

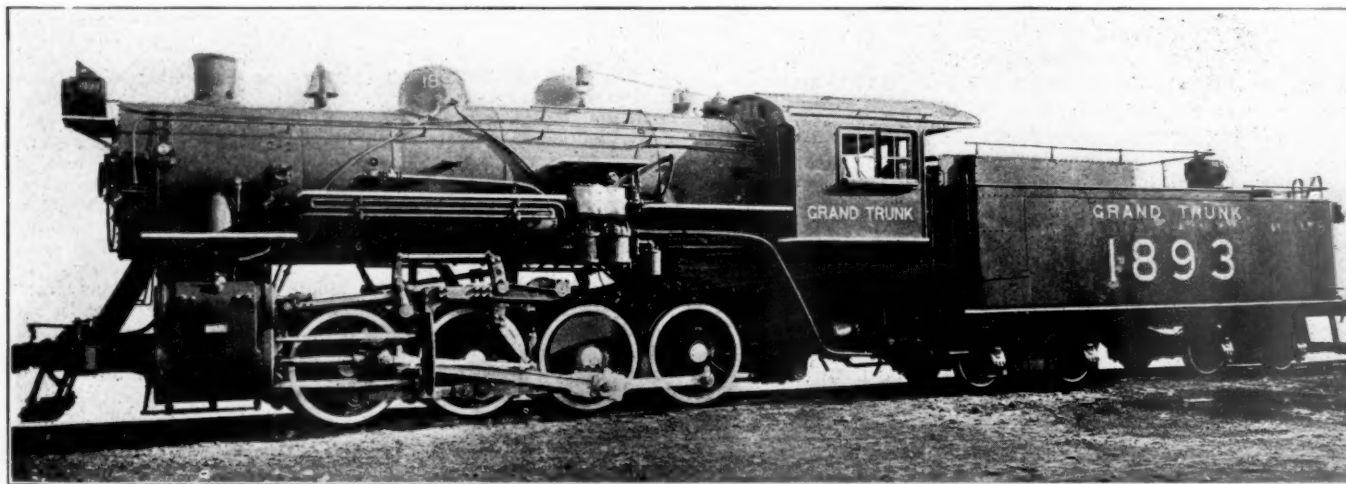
The tender is of the Grand Trunk railway standard type with a Commonwealth cast steel frame. The trucks are of the railway company's four wheeled outside equalized type with cast steel bolsters, Miner class A18 draft gear and Buffalo tender brake beams. All the material of which these locomotives are built conforms to the Grand Trunk railway standard specification. Further particulars are given in the table of dimensions.

General Data

Gage	4 ft. 8½ in.
Service	Switching
Fuel	Bituminous coal
Tractive effort	52,300 lb.
Weight in working order	242,750 lb.
Weight of engine and tender in working order	406,700 lb.
Wheel base	15 ft. 6 in.
Wheel base, engine and tender	53 ft. 4½ in.

Ratios

Weight on drivers ÷ tractive effort	4.64
Tractive effort × diam. drivers ÷ equivalent heating surface*	840.0
Equivalent heating surface* ÷ grate area	61.8



An Efficient Locomotive for Heavy Switching Service

Buffalo and at intermediate points. They are probably the heaviest engines in Canada of their type.

The boiler is equipped with the Locomotive Superheater Company's latest type A superheater with 32 units and is designed to carry a working pressure of 190 lb. per sq. in. It is radially stayed and flexible staybolts are used in the breaking zones in the sides, back and throat of firebox. The firebox is equipped with a smoke consumer having combustion tubes on each side; it also contains a brick arch supported on four 3-in. tubes. The O'Connor fire door flange

Firebox heating surface ÷ equivalent heating surface*, per cent.	5.7
Weight on drivers ÷ equivalent heating surface*	69.5
Volume both cylinders	18.42 cu. ft.
Equivalent heating surface* ÷ vol. cylinder	189.4
Grate area ÷ vol. cylinders	2.9

Cylinders

Kind	Simple
Diameter and stroke	26 in. by 30 in.

Valves

Kind	Piston
Diameter	12 in.
Greatest travel	8¼ in.
Lap	1 15/16 in.
Lead	3/16 in.

Wheels

Driving, diameter over tires.....	56 in.
Driving journals, main diameter and length.....	11 in. by 20 in.
Driving journals, other diameter and length.....	10 in. by 13 in.

Boiler

Style.....	Radial stayed
Working pressure.....	100 lb. per sq. in.
Outside diameter at front.....	74 in.
Firebox, length and width.....	108 13/16 in. by 75 1/2 in.
Tubes, number and outside diameter.....	228—2 in.
Flues, number and outside diameter.....	32—5 5/8 in.
Tube and flue length.....	15 ft. 0 in.
Heating surface, tubes and flues.....	2,450.5 sq. ft.
Heating surface, firebox inc. arch tubes.....	225.5 sq. ft.
Heating surface, total.....	2,676.0 sq. ft.
Superheater heating surface.....	543.0 sq. ft.
Equivalent heating surface*.....	3,490.0 sq. ft.
Grate area.....	56.5 sq. ft.

Tender

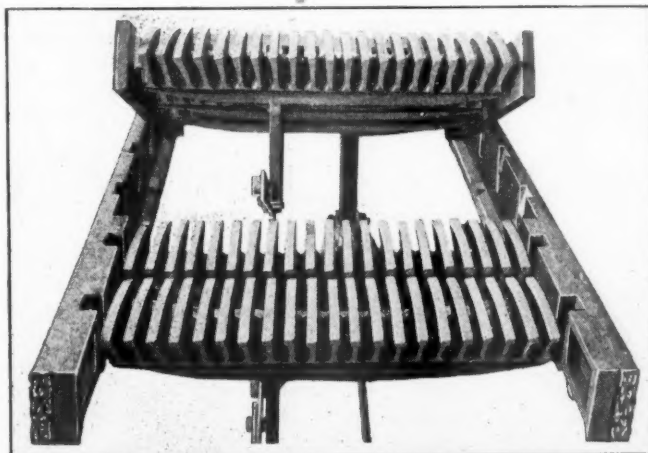
Tank.....	Water bottom
Journals, diameter and length.....	6 in. by 11 in.
Water capacity.....	9,000 U. S. gal.
Coal capacity.....	10 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

The Hulson Shaking Dump Grate

THE DUMP GRATE has always been a necessary evil in the locomotive firebox, necessary to provide for the removal of clinkers when cleaning fires at terminals, and an evil because of the "dead" surface of the dump or drop grate from which it is impossible to remove the accumulation of ash while the locomotive is in operation between terminals. The effective grate area is, therefore, practically reduced by the area of the dump grate.

In order that the entire area of the grate may be made uniformly effective, the Hulson Grate Company, Keokuk,



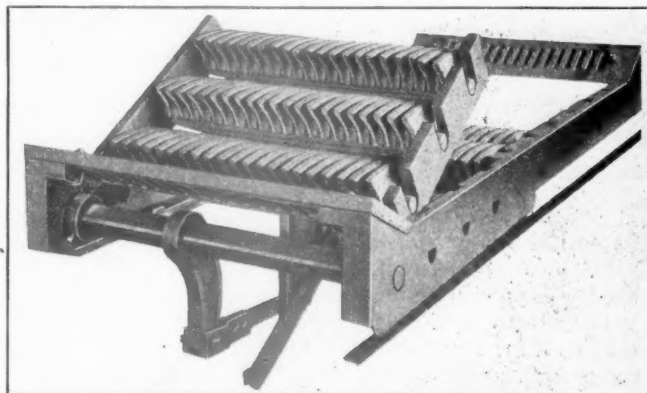
Hulson Locomotive Grate with the Lifting Grate Open

Iowa, has designed a locomotive grate in which the drop grate is replaced by three finger bars in a frame which may be swung upward about a shaft journaled at the front end of the grate frames. Standard finger bars are used in the lifting frame and they are shaken as a part of the front section of the grate.

The construction of the device is simple and will readily be understood by reference to the illustration. It will be seen that the side and center frames are recessed at the front ends, the length of the recess being sufficient to take in the cast steel lifting frames of rectangular cross-section with trunnion bearings for the three standard finger bars. Square holes are cored through the ends of the lifting frames which are reinforced with hubs to provide ample strength, and the frames are mounted on a 2-in. square wrought iron staff. This staff, with the lifting frames and a cast steel lifting arm mounted on it, is placed in the stationary grate frames, one end being slipped into a circular hole cored in the side frame

and the other dropped into a slot in the center frame. When assembled the slot in the center frame is closed by the front tie bar.

To permit the three finger bars in the lifting frame to be shaken with the remainder of the bars in the front section of the grate, the shaker arms of the bars in the lifting frame and those in the remainder of the section are connected independently, the two systems being united through a second connecting rod with one connection to each system. In order that the movement of the lifting frame may not interfere with the operation of the shaker rigging, the rod connecting the three finger bars in the lifting frame is extended forward so that when the finger bars are in their normal position its end is directly under the lifting shaft. The operating connection is made at this point so that when the lifting grate is open, the finger bars retain positions parallel to each other

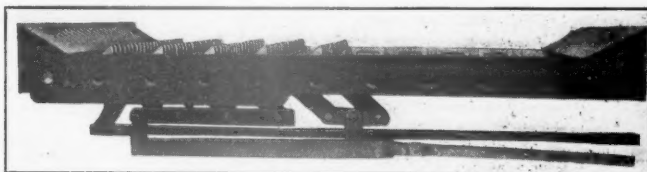


Front End of the Grate Showing the Operating Shaft and Lifting Frames

and to the grates in the remainder of the section but change their angular position relative to the lifting frame itself. Either with the lifting frame open or closed, there is no interference with the shaking of the grates in the entire section.

The lifting grate is designed to swing through an angle of over 30 deg. and provides a vertical opening between the grate and the raised fingers of about 18 in. with a considerably larger horizontal opening under the lifting frame.

The operation of the Hulson finger grates, with their freedom from slicing action on the fire, tends to reduce the amount of clinkers to be removed at terminals and the design of the fingers is such that the grates dump much more freely when the bars are moved to the full extent of the



Side View of the Grate Showing the Operating Connections

shaking movement than is possible with the usual type of finger grates. Should heavy clinker accumulate, however, the lifting section provides a means of clearing the grate with the least possible amount of effort. After all ash and clinker which will pass through the grate has been removed by shaking, the surface of the lifting section is cleared with a hoe, the material being drawn back towards the center of the firebox. It is then raised and all material remaining on the grates is pushed forward and dropped into the ash pan. The ledges at the bottom of the recesses in the grate frames are chamfered for practically their entire length, three short lugs being left to support the lifting frames when in

the closed position. Any accumulation of clinker or ash on the ledges is thus prevented and the lifting grate will always freely drop back into place.

The lifting grate is operated from the cab, its normal position being closed, and a lock is provided to hold the operating lever in the open position when the lifting grates are raised. The possibility of the grate dropping while the locomotive is in operation is thus eliminated.

The usual location for the dump grate is at the front end of the firebox and the Hulson lifting section is designed for location at that point. Should lack of clearance under the arch in locomotives with shallow fireboxes interfere with this location it may be placed at the rear of the firebox, in which case it swings up from the rear end, under the door.

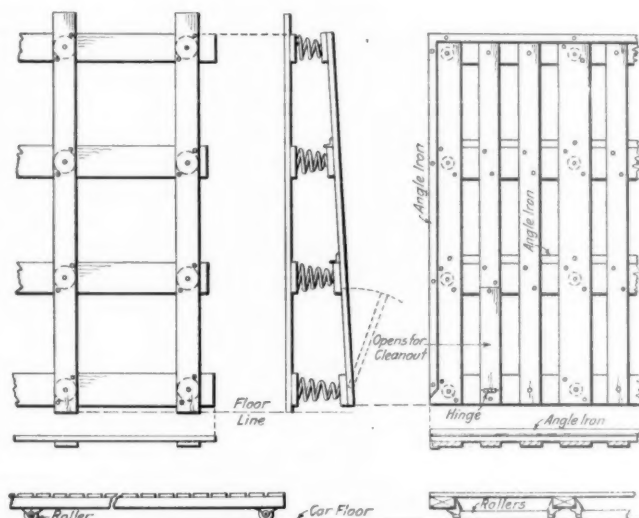
The device is simple and requires no expensive parts. The only special parts are the two cast steel lifting side frames, the square wrought iron shaft and the cast steel lifting arm. The only machine work required is the turning of the short journals on the ends of the shaft. A patent has been applied for.

Shock Absorber for Refrigerator Cars

IN 1914, a device known as the Cutler-Monesmith shock absorber was developed by George E. Cutler, New York, and B. L. Monesmith, Cresco, Iowa, for the purpose of reducing egg breakage in shipment. The device was adapted for refrigerator cars or sheathed freight cars and could be used for shipping other products than eggs. The original arrangement consisted of a loose floor racking supported on pieces of 2-in. pipe with spring buffers at either end of the car to absorb the shock. This arrangement was somewhat crude and recent developments are shown in the illustrations.

The principle of the improved shock absorber is the same as that of the first device, namely, the load is held as a unit within the car on a movable floor, the shock being absorbed

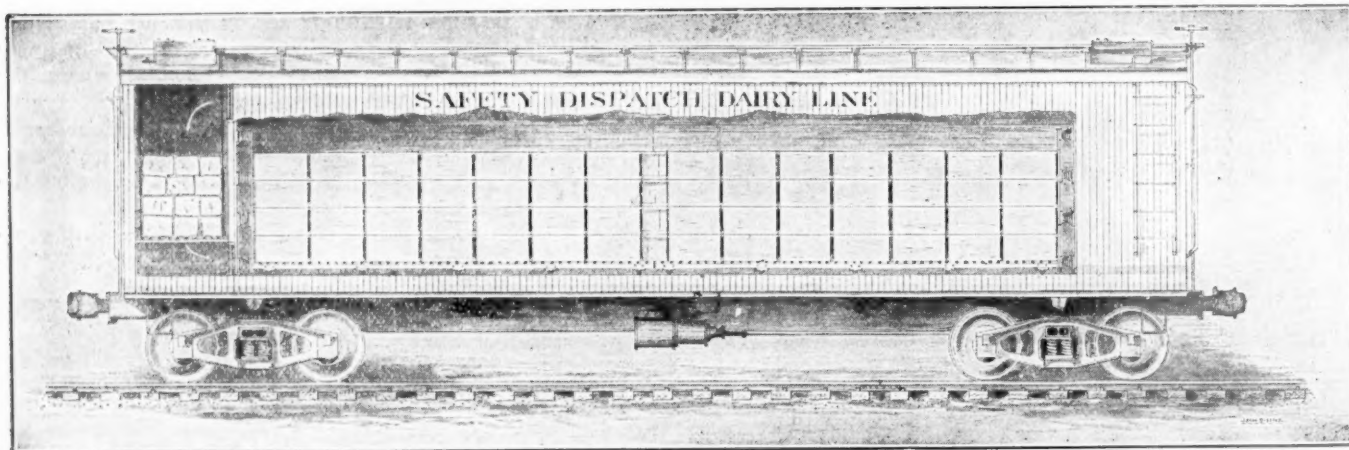
floor section is made such as to cause the front racks or buffers to stand in a vertical position. The width of the buffer is $\frac{3}{4}$ in. less than the interior width of the car. The buffers are ordinarily 5 ft. 8 in. above the floor of the car and $1\frac{1}{2}$ in. less than the width of the car. All buffers and



Details of Buffer Construction

floor racks receive one coat of linseed oil, well rubbed in. The metal work is treated with an anti-rust process.

The rollers shown are made of extra heavy $1\frac{1}{8}$ in. pipe, the journals being welded into each end of a steel plug $1\frac{1}{4}$ in. long. The journals are $\frac{3}{4}$ in. in diameter. The bearings are ordinarily made of malleable steel castings designed to support the load with a generous factor of safety. The springs are made of spring steel wire, oil tempered and carefully coiled to correct form and dimensions. Each end of



Phantom View of Cutler-Monesmith Device Applied to Refrigerator Car

by spring buffers at either end. There must be no projections on the interior of the car sides to interfere with lateral movement of the load. The correctness of the principle involved was amply demonstrated by the results obtained in service which have vindicated the contention of the inventors that the load must be made rigid within the confines of the movable carriage and be sufficiently separated from the car sides to permit forward and backward oscillation without contact.

The floor racks are made of 1-in. by 4-in. slats and 2-in. by 4-in. stringers. It will be noticed in the line drawing that the lowest spring is greater in free length than the highest one. This gives a greater spring compression at the bottom of the buffer, where it is most needed. The length of the

the buffer is provided with two clean-cut openings of sufficient size so that the ice bunkers may be readily cleaned. They have a hinge at the bottom and lag screws at the top.

Another important advantage of this device is the fact that the load rests a few inches above the floor of the car and there can be no damage due to water. The device is adaptable to use for other merchandise and food products, being by no means limited to the transportation of eggs. In case heavier material is to be shipped, it would only be necessary to furnish springs of greater tension and possibly insert two extra springs in the bottom row. The ideal spring tension would be one sufficient to gradually return the load to its central position after a shock, and thus have it ready for the next.

General News Department

The piece-work system has been restored in two departments of the foundry of the Pennsylvania Railroad at Altoona—the cleaning room and the wheel foundry.

A bill to provide that all meetings of the Federal Reserve Board and of the Interstate Commerce Commission shall be open to the public has been introduced in Congress by Representative McLaughlin, of Nebraska.

By a fire at the Pullman repair works at One Hundred and Eighth street and Langley avenue, Chicago, on the morning of January 27, a freight car shop was destroyed at a loss of about \$450,000. Seven new refrigerator cars and 12 Pullman sleepers were also destroyed. The fire was the result of spontaneous combustion in one of the tool rooms.

The Post Office Department has finally got around to asking for an appropriation for the amount it owes the Railroad Administration for the retroactive increase in mail rates for the period of federal control. The Treasury Department on Wednesday submitted to Congress an estimate for deficiency appropriation for the Department of \$65,575,832, which has been agreed upon as the amount due for the 26 months.

Thomas DeWitt Cuyler, chairman of the Association of Railway Executives, has written a letter to Chairman Esch of the House committee on interstate and foreign commerce regarding the statement made in his recent testimony before the committee, that he understood that the Southern Railway was contemplating a suit for \$84,000,000 against the government growing out of claims to that amount accruing under federal control. Mr. Cuyler says that he has been advised by President Harrison of the Southern Railway that such is not the fact and that the statement is not justified. He, therefore, asks that the record be corrected in this respect.

R. V. Massey, chairman of the newly organized joint reviewing committee of the Pennsylvania Railroad, says that the committee already has successfully disposed of, to the satisfaction of both sides, eight controversies which have been pending a long time, one of them since 1914. To emphasize the fact that the committee is a united non-partisan body for the judicial and impartial settlement of differences and not a mere conference between representatives of opposing sides, it has been decided that at the meetings no two representatives of the management or of the employees shall be seated together, but that they shall be alternated around the table. Mr. Massey is "confident that every member of the committee, whether representing the men or the management, is keenly alive to the responsibility resting upon him; and equally confident that not one of the committee has the slightest doubt of the ability of this body to adjust on a fair and friendly basis any differences which may arise affecting the employees represented."

Executive Committee Meeting of

C. I. C. I. & C. F. Association

The Executive Committee of the Chief Interchange Car Inspectors' and Car Foremen's Association of America will meet at the Hotel Sherman, Chicago, on Thursday and Friday, March 3 and 4. The entire membership is invited to this meeting to suggest changes in the A. R. A. Rules of Interchange.

End of Eight Years' Litigation

The Federal District Court in Kentucky, Judge Evans, has ordered the Western Union Telegraph Company by November 1 to remove its poles and wires from the right of way of the Louisville & Nashville Railroad. This, apparently, settles the suits which have been in the courts since 1912, as the present

order has been made in compliance with the order of the Circuit Court of Appeals, which decided in favor of the railroad company and directed the lower court to dissolve the injunction which had been entered forbidding the railroad company to interfere with the property of the telegraph company. The telegraph company made an appeal to the United States Supreme Court, but that court refused to interfere with the ruling of the lower tribunal.

Members of Construction Division, U. S. A., to Meet

Members of the Construction Division of the Army, including the commissioned and enlisted personnel, as well as those who served in civilian capacity and who live in or near New York City, will get together at the Aldine Club, 200 Fifth avenue, New York, at 6:30 o'clock on the evening of February 12.

The reunion will be a preliminary to the trip which many of them will make to Chicago on February 25, to attend the annual reunion of the Construction Division Association, and will consist of a banquet, in connection with which there will be sufficient entertainment to carry out the "get together" spirit of the occasion. Vance W. Torbert, 200 Fifth avenue, New York, is chairman of the banquet committee.

Operating Statistics for November

The Interstate Commerce Commission's monthly summary of operating statistics for large steam roads for the month of November shows a total net ton mileage of 37,194,000,000, which was an increase of 14½ per cent as compared with November, 1919. The average tonnage per train was 710 as compared with 681. The percentage of loaded to total freight car miles was 63.2 as compared with 71.2. The percentage of unserviceable cars was 7.4 as compared with 6.3. The average car mileage per day was 26.8 as compared with 23.4. The net ton miles per car day were 517 as compared with 437, and the average load per car 30.6 tons as compared with 26.3. The average cost per freight train mile, selected accounts, was \$2.26 as compared with \$1.70 in 1919. For the 11 months ending with November the average was \$2.01 as compared with \$1.62.

Eight Years for Stealing Baggage

For stealing baggage from the Pennsylvania Railroad, two men were sentenced in court at New York City on January 26, to eight years and three years six months imprisonment, respectively.

The prosecuting attorney said that thefts from baggage at New York City terminals during the past year had amounted to over \$3,000,000. From the Pennsylvania Station alone, he said, \$34,000 worth of baggage was stolen from August 23 to the end of 1920. Organized gangs operate at all the terminals. The scheme mainly used, he outlined, was to have an "outside man" check a small parcel for some nearby point. The "inside man" would transfer the check of the small parcel to some big box or trunk apparently filled with merchandise, and a third man would obtain the box or trunk at destination. One of the culprits was formerly a porter in the Pennsylvania Station.

Reductions in Wages and Work

The Erie Railroad has reduced the wages of unskilled laborers from 48½ cents an hour to 35, 33 and 30 cents. This is understood to apply to large numbers of trackmen and freight-house men. Complaint was made, on behalf of employees, to R. S. Parsons, general manager, who replied that the company intended to pay a fair differential above going rates of labor in the vicinity in which it is employed. "This action is only taken as a last extremity, and was avoided as long as possible. I do not see how

we can make any change in it at the present time, and sincerely trust that the whole question can be speedily settled to the satisfaction of all concerned."

In the Erie shops at Hornell, N. Y., most of the employees have been ordered to report for duty on only four days a week.

The Louisville & Nashville has reduced shop forces 10 per cent. The Delaware, Lackawanna & Western has taken similar action at Scranton, Pa.

The Southern Pacific has laid off 1,200 of its shopmen at Sacramento, Cal.

The Union Pacific has ordered the five-day week for shopmen and trackmen.

Punctuality Records on the Katy

The Missouri, Kansas & Texas, of Texas, reports that freight and passenger trains are being run with a higher percentage of punctuality than ever before in the history of the railroad, indicating that employees are not only trying but are actually rendering more efficient service than ever before. During December 92 per cent of all passenger trains were on time, and 85 per cent of all freight was moved on schedule.

General Manager H. E. McGee, in a circular to the public, says that with his harmonious and efficient organization, "We expect to continue, if not improve, this record. . . . To run one passenger train on time across the great state of Texas, it is necessary that approximately one thousand men, directly or indirectly connected with its operation, perform their duties efficiently." The company solicits constructive criticism, and would like to have passengers commend the men when they render unusual service or particular acts of courtesy.

The Pony Express and the Air Mail

Arguments have been advanced against the air mail service on the ground that it is too dangerous. But there have been comparatively few casualties. It is interesting to note that the same objection was advanced in 1860 at the opening of the "Pony Express" from Omaha to Sacramento. The continuous breakneck speed required of the riders, together with the perils of the wilderness trails made the enterprise appear foolhardy in the view of many.

Nevertheless, the "Pony Express" was started and performed a service of great benefit until supplanted by the telegraph. Each rider covered from 75 to 125 miles a day, largely on a dead run; horses were changed at relay stations, 10 to 15 miles apart. The schedule was 10 days in summer, 12 in winter, for the 2,000-mile trip. This was afterwards reduced to 8 and 10 days. The service commenced with 80 riders and 420 ponies and continued for 16 months. Only one mail pouch was lost during that period and only one rider was killed outright by Indians, although there were many attacks and hair-breadth escapes.

On December 17 Mail Pilot Moore completed a round trip by aeroplane between Cheyenne and Salt Lake City, between dawn and darkness. Pilot Moore left the Cheyenne field at 5:42 a. m., delivered 400 lb. of mail in Salt Lake City and was back in Cheyenne at 4:44 p. m. He had flown 800 miles, crossed the Rockies twice and made two stops. At times he attained an altitude of 13,000 feet.—*Union Pacific Bulletin*.

Brotherhoods Refusing to Submit Claims to U. S. R. A.

Representatives of the railroad labor organizations have sent a telegram to the director general of railroads protesting against his action in abolishing the three boards of adjustment created by the Railroad Administration and appointing to finish up their work a staff officer and two assistants who, they claim, are "unqualified because of their past and anticipated future affiliations as representatives of the railroad management." The boards, which were composed of an equal number of representatives of the employees and of the managements, have been passing on a large number of cases involving disputes as to working conditions and interpretations of wage orders arising during the period of federal control. The objection is that the staff officer, J. D.

Code, and his assistants, R. J. Turnbull and C. T. O'Neill, are not "bi-partisan." "If our understanding is correct," the letter says, "this will serve to advise you that we hereby withdraw every claim submitted to and now before the Railroad Administration . . . which have not been decided by Board of Adjustment 2 and 3, and you will further understand by the above notice that there are no claims which are properly before the Railroad Administration which require or permit any further handling by you as director general or your representatives."

To this Director General Payne replied, saying in part: "You do not make it clear whether you have any objection to Messrs. Code, Turnbull and O'Neill beyond the fact that they may—when they leave the service of the Railroad Administration—seek employment from railroads. This is entirely immaterial as I see it, because the railroads have no earthly interest in the claims of the employees now pending. The decision is expressly limited to the period of federal control. If these men are honest, liberal-minded, just men, I see no reason for any change. If they are not, I will be very glad to have you give me in confidence any facts which you may think pertinent."

The labor leaders then advised Mr. Payne that they had nothing further to submit and that they were making necessary arrangements and would request the return of the files in each of the claims.

Marine Equipment Manufacturers

and Shipbuilders Organize

At a meeting held January 28, at the Biltmore Hotel, New York, representatives of 47 shipbuilding companies, manufacturers of marine equipment and dealers in marine supplies formed an association for the following purposes: To advance the interests of its members; to promote good-will between those who buy and those who sell marine equipment and supplies; to promote and supervise exhibits; and to co-operate with other associations in the marine field to the end that their efforts for the advancement of the designing, building and operation of ships shall be most productive.

It is proposed that membership in the Marine Equipment Manufacturers' Association shall be limited to those who build and repair ships, or make or sell equipment or supplies; manufacturers of or dealers in machinery or appliances for building, repairing or loading ships; marine insurance companies or brokers, and publishers of regularly issued periodicals devoted to marine subjects. It would not be limited to those who exhibit; but to exhibit, one must first be a member of the association.

The Marine Equipment Manufacturers' Association as planned will closely parallel the Railway Supply Manufacturers' Association in the steam railway field. The latter is organized on a permanent business basis and conducts its own exhibit in connection with the annual convention of Division 5, Mechanical, of the American Railway Association. In the marine field, one show has already been held in New York, a second is scheduled for Philadelphia in March and others are being planned for Chicago, New Orleans, San Francisco, Baltimore and Boston. While the New York show was held under the auspices of the National Marine League, it was managed by an exhibition company, with a pecuniary interest only, and the space cost more than six times per square foot what the exhibitors paid at the Atlantic City convention of the American Railway Association in June last. Further, and what is even more important, 90 per cent of the visitors at the Atlantic City exhibit were buyers, while at the marine show in New York probably less than five per cent were buyers. The Marine Equipment Manufacturers' Association expects to hold one show a year only and in conjunction with one or more of the associations in the marine field comparable with Division 5, Mechanical, of the American Railway Association—for example, the Society of Naval Architects and Marine Engineers. It is believed that when a comprehensive co-operative plan is laid before the several important societies in the marine field they will gladly arrange to meet simultaneously with the Marine Equipment Manufacturers' Association.

The temporary officers of the association are Colonel E. A. Simmons, acting president, *Marine Engineering*, Woolworth building, New York; K. L. Ames, Jr., acting secretary, American Steel Foundries, 332 South Michigan avenue, Chicago, Ill.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

- AIR BRAKE ASSOCIATION.**—F. M. Nellis, Room 3014, 163 Broadway, New York City. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.**—Fred W. Venton, 836 So. Michigan Ave., Chicago. Meeting with Air Brake Association.
- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.**—F. A. Pontious, Supervisor of Demurrage and Storage, C. & N. W. Ry., Chicago.
- AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.**—S. W. Derr, Philadelphia & Reading, Philadelphia, Pa.
- AMERICAN ASSOCIATION OF FREIGHT AGENTS.**—R. O. Wells, Illinois Central, Chicago. Next meeting June 20, 1921.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, C. & E. I. R. R., 332 South Michigan Ave., Chicago. Next meeting, June, 1921, Quebec, Can.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.**—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, August 24-26, 1921, Kansas City, Mo.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—E. B. Burritt, 8 W. 40th St., New York.
- AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.**—C. Borchardt, 202 North Hamlin Ave., Chicago, Ill. Next convention September 12-14, Hotel Sherman, Chicago.
- AMERICAN RAILWAY ASSOCIATION.**—J. E. Fairbanks, 75 Church St., New York. Next regular meeting, November, 1921.
- Division 1, Operating (including former activities of Association of Railway Telegraph Superintendents).—W. J. Fripp (chairman), General Manager, N. Y. C. R. R., New York, N. Y.
- Telegraph and Telephone Section.—H. Hulatt (chairman), Manager of Telegraphs, Grand Trunk Exhibit by Railway Telegraph and Telephone Appliance Association.
- Division 2, Transportation (including former activities of Association of Transportation and Car Accounting Officers).—E. J. Pearson (chairman), President, N. Y., N. H. & H. R. R., New Haven, Conn.
- Division 3, Traffic.—Robert C. Wright (chairman), General Traffic Manager, P. R. R., Philadelphia, Pa.
- Division 4, Engineering.—E. H. Fritch, 431 South Dearborn St., Chicago. Next annual meeting, March 15-17, 1921, Chicago.
- Construction and Maintenance Section.—E. H. Fritch, secretary.
- Electrical Section.—George Gibbs (chairman), Chief Engineer of Electric Traction, Long Island Railroad, New York, N. Y.
- Signal Section.—H. S. Balliet, 75 Church St., New York. Exhibit by Signal Appliance Association.
- Division 5, Mechanical (including former activities of Master Car Builders' and Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago. Next convention June 15-22, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.
- Equipment Painting Section.—V. R. Hawthorne, secretary.
- Division 6, Purchases and Stores (including former activities of Railway Storekeepers' Association).—J. P. Murphy, General Storekeeper, N. Y. C. R. R., Collinwood, Ohio. Second annual meeting, June 20-22, 1921, Atlantic City, N. J.
- Division 7, Freight Claims (including former activities of the Freight Claim Association).—Lewes Pilcher, 431 South Dearborn St., Chicago.
- Division 8, Perishable Freight.—E. F. McPike (chairman), 431 South Dearborn St., Chicago.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Austin Station, Chicago. Next convention, October 18-20, 1921, New York City. Exhibit by Bridge and Building Supply Men's Association.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—(Works in co-operation with the American Railroad Association, Section II.) E. H. Fritch, 431 South Dearborn St., Chicago. Next annual meeting, March 15-17, 1921, Congress Hotel, Chicago. Exhibit by National Railway Appliance Association.
- AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.**—(See American Railway Association, Division 5.)
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—R. D. Fletcher, 1145 East Marquette Road, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.
- AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.
- AMERICAN SOCIETY FOR TESTING MATERIALS.**—C. L. Warwick, University of Pennsylvania, Philadelphia, Pa.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.**—Col. H. S. Crocker, (acting secretary), Engineering Societies Building, 33 W. 39th St., New York. Next convention, April 27, 1921, Houston, Texas. Regular meetings, 1st and 3d Wednesday in month, except July and August, 33 W. 39th St., New York.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York.
- AMERICAN STEEL TREATERS' SOCIETY.**—W. H. Eiseman, 154 East Erie St., Chicago.
- AMERICAN TRAIN DISPATCHERS' ASSOCIATION.**—C. L. Darling, Northern Pacific Ry., Spokane, Wash. Next convention, June 20, 1921, Kansas City, Mo.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.**—F. J. Angier, B. & O., Mt. Royal Sta., Baltimore, Md.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.**—Willis H. Failing, C. R. R. of N. J., Jersey City, N. J. Next meeting at St. Louis, Mo.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N. W. Ry., Room 411, C. & N. W. Sta., Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.
- ASSOCIATION OF RAILWAY EXECUTIVES.**—Thomas De Witt Cuyler (chairman), 61 Broadway, New York, N. Y.
- ASSOCIATION OF RAILWAY SUPPLY MEN.**—C. L. Mellor, 212 W. Illinois St., Chicago. Meeting with International Railway General Foremen's Association.
- ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.**—(See American Railway Association, Division 1.)
- ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.**—(See American Railway Association, Division 2.)
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—A. J. Filkins, Paul Dickinson Company, Chicago. Meeting with convention of American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.**—W. A. Booth, 131 Charron St., Montreal, Que. Next meeting, December 14.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, New Morrison Hotel, Chicago.
- CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—Thomas B. Koeneke, Federal Reserve Bank Bldg., St. Louis, Mo. Meetings first Tuesday in month at the American Hotel Annex, St. Louis.
- CENTRAL RAILWAY CLUB.**—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 2d Thursday in November and 2d Friday in January, March, May and September, Hotel Statler, Buffalo, N. Y.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.**—J. C. Keene, General Car Inspector, Wabash R. R., Decatur, Ill.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.**—W. P. Elliott, Terminal R. R. Ass'n of St. L., East St. Louis, Mo. Next convention, September 15-17, Hotel Sherman, Chicago.
- CINCINNATI RAILWAY CLUB.**—H. Boutet, 101 Carew Bldg., Cincinnati, Ohio.
- EASTERN RAILROAD ASSOCIATION.**—E. N. Bessling, 614 F St., N. W., Washington, D. C.
- FREIGHT CLAIM ASSOCIATION.**—(See American Railway Association, Division 7.)
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.**—A. M. Hunter, 321 Grand Central Sta., Chicago. Regular meetings, Wednesday preceding 3d Friday in month, Room 856, Insurance Exchange Bldg., Chicago.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Next convention, August 16-18, 1921, Hotel Sherman, Chicago.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—J. G. Crawford, 702 E. 51st St., Chicago. Next annual meeting, May, 1921, Hotel Sherman, Chicago.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabasha Ave., Winona, Minn. Next convention, September 12-15, Hotel Sherman, Chicago. Exhibit by Association of Railway Supply Men.
- MAINTENANCE OF WAY MASTER PAINTERS' ASSOCIATION.**—E. E. Martin, Union Pacific R. R., Room No. 19, Union Pacific Bldg., Kansas City, Mo. Next convention October 4-6, 1921, Buffalo, N. Y.
- MASTER BOILER MAKERS' ASSOCIATION.**—Harry D. Vought, 95 Liberty St., New York. Next convention, May 23-26, 1921, Planters' Hotel, St. Louis, Mo.
- MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.**—(See American Railway Association, Division 5, Equipment Painting Section.)
- MASTER CAR BUILDERS' ASSOCIATION.**—(See American Railway Association, Division 5.)
- NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.**—E. E. Pershall, T. J. Moss Tie Company, 720 Security Bldg., St. Louis, Mo.
- NATIONAL ASSOCIATION OF RAILWAY AND UTILITIES COMMISSIONERS.**—James B. Walker, 49 Lafayette St., New York.
- NATIONAL FOREIGN TRADE COUNCIL.**—O. K. Davis, 1 Hanover Square, New York.
- NATIONAL RAILWAY APPLIANCE ASSOCIATION.**—C. W. Kelly, Kelly-Derby Co., Peoples Gas Bldg., Chicago. Meeting with American Railway Engineering Association.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, excepting months of June, July, August and September.
- NEW YORK RAILROAD CLUB.**—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.
- PACIFIC RAILWAY CLUB.**—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meeting 2d Thursday in month, alternately in San Francisco and Oakland.
- RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.**—E. R. Woodson. Next annual meeting, June 8, 1921, Hotel Traymore, Atlantic City, N. J.
- RAILWAY BUSINESS ASSOCIATION.**—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut Sts., Philadelphia, Pa.
- RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Americus Club House, Pittsburgh, Pa.
- RAILWAY DEVELOPMENT ASSOCIATION.**—D. C. Welty, Missouri Pacific R. R., Little Rock, Ark.
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.**—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.
- RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.**—D. L. Eubank, Galena Signal Oil Company, Richmond, Va. Meeting with Traveling Engineers' Association.
- RAILWAY FIRE PROTECTION ASSOCIATION.**—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.
- RAILWAY REAL ESTATE ASSOCIATION.**—R. H. Morrison, C. & O. Ry., Richmond, Va.
- RAILWAY SIGNAL ASSOCIATION.**—(See American Railway Association, Division 4, Signal Section.)
- RAILWAY STOREKEEPERS' ASSOCIATION.**—(See American Railway Association, Division 6.)
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meeting with American Railway Association, Division 5.
- RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, Waterbury Battery Co., 30 Church St., New York.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Next annual convention, September 20-22, 1921, Chicago. Exhibit by Track Supply Association.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August.
- SIGNAL APPLIANCE ASSOCIATION.**—F. W. Edmunds, Schroeder Headlight & Generator Co., New York City. Meeting with American Railway Association, Signal Section.
- SOCIETY OF RAILWAY FINANCIAL OFFICERS.**—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa.
- SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3d Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—E. W. Sandwich, Western Ry. of Ala., Atlanta, Ga.
- SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—C. N. Thulin, Duff Manufacturing Company, 935 Peoples Gas Bldg., Chicago.
- TRACK SUPPLY ASSOCIATION.**—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.
- TRAVELING ENGINEERS' ASSOCIATION.**—W. O. Thompson, N. Y. C. R. R., Buffalo, N. Y. Exhibit by Railway Equipment Manufacturers' Association.

Traffic News

The production of soft coal during the week of January 22 declined sharply for the sixth week in succession. The total output is estimated by the Geological Survey at 9,139,000 net tons.

Canadian express companies have been authorized by the Board of Railway Commissioners to advance transportation rates from 20 to 35 per cent. The companies had asked leave to make a general increase of 40 per cent.

Interchangeable tickets for use on either the Pennsylvania or the Baltimore & Ohio, between Philadelphia, Baltimore and Washington are not to be honored after February 7. Re-establishment of normal pre-war train service by each road is given as the reason for changing from the practice inaugurated during federal control.

The Senate committee on interstate commerce has submitted a favorable report to the Senate on the bill recommended by the Interstate Commerce Commission, which has been passed by the House, proposing to amend the existing law relating to the transportation of explosives by including within its provision certain high explosives which are now omitted.

The Long Island Railroad on January 29 made a general advance of 20 per cent in passenger fares, excepting commutation tickets. This action followed the decision of the Appellate Division of the Supreme Court of the State, on the 28th, vacating the injunction which had restrained the railroad from complying with the order of the Interstate Commerce Commission requiring the advance in rates. The Appellate Division holds that the constitutionality of the Transportation Act of 1920 cannot be attacked in the State Court. The Staten Island Rapid Transit Company, which had been enjoined at the same time, also made the advance.

The Chicago, Milwaukee & St. Paul has put home-seekers' rates into effect at slightly over two cents a mile from Chicago to points in its territory as far west as within about 125 miles of the Pacific Coast. The tickets are for first class transportation for the entire distance. The company will sell the home-seekers' tickets from St. Paul, Minneapolis, Sioux City, Iowa, and tributary territory, as well as from Chicago. They will be on sale on the first and third Tuesdays of each month and will be good for 21 days. In addition to the new low rate for western home-seekers, the company will sell at Chicago and Milwaukee tickets good for ten days to prospective home-seekers going to points in northern Wisconsin and Michigan.

Committees to Confer With Shippers

The executive committee of the National Industrial Traffic League met in Chicago on January 25, to follow up and complete the arrangements for co-operation between shippers and carriers, which were made at the joint meeting with representatives of 17 trunk line railroads, held in New York last November. The Traffic League has appointed committees to work with groups representing the carriers. The committee which will represent the Traffic League in Official Classification territory has as its members W. H. Chandler, manager of the Transportation Bureau, Boston Chamber of Commerce, Boston, Mass., who is general chairman; N. D. Chapin, traffic manager, Syracuse Chamber of Commerce, Syracuse, N. Y.; L. C. Bihler, traffic manager, Carnegie Steel Company, Pittsburgh, Pa.; Paul M. Ripley, traffic manager, American Sugar Refining Company, New York City; George A. Blair, general traffic manager, Wilson & Co., Chicago. The league will be represented in western territory by a committee composed of H. C. Barlow, traffic director, Chicago Association of Commerce, Chicago, who is regional chairman; C. D. Mowen, commissioner, Ft. Smith Traffic Bureau, Ft. Smith, Ark.; Harry Dickinson, commissioner, Denver Transportation Bureau, Denver,

Colo.; J. P. Haynes, commissioner, Traffic Bureau, Chamber of Commerce, Sioux City, Ia.; Herman Mueller, traffic director, St. Paul Association, St. Paul, Minn. The committee for the southern territory has as its members W. C. Creighton, traffic manager, Charlotte Shippers' & Manufacturers' Association, Charlotte, N. C., who is regional chairman; C. S. Hoskins, president, Southern Traffic League, Tampa, Fla.; T. M. Henderson, commissioner, Traffic Bureau of Nashville, Nashville, Tenn.; Paul Giessow, general manager, New Orleans Joint Traffic Bureau, New Orleans, La.; T. A. Bosley, assistant traffic manager, Southern Cotton Oil Company, Richmond, Va.

The carriers have also selected representatives corresponding to and co-operating with the Traffic League's committees. To represent the railroads in Official Classification territory, a committee has been chosen whose members are G. H. Ingalls, vice-president, New York Central, New York City, who is general chairman; George D. Dixon, vice-president in charge of traffic, Pennsylvania System, Philadelphia, Pa.; T. C. Powell, vice-president, Erie, New York City; W. C. Maxwell, vice-president in charge of traffic, Wabash, St. Louis, Mo.; B. Campbell, vice-president, New York, New Haven & Hartford, Boston, Mass. The carriers' committee for western territory includes R. M. Calkins, vice-president, Chicago, Milwaukee & St. Paul, Chicago; Edward Chambers, vice-president, Atchison, Topeka & Santa Fe, Chicago; L. J. Spence, director of traffic, Southern Pacific, New York City; C. E. Spens, vice-president, Chicago, Burlington & Quincy, Chicago; C. Haile, vice-president, Missouri, Kansas & Texas, St. Louis, Mo. The members of the committee for the southern territory are C. T. Airey, vice-president and traffic manager, Central of Georgia, Savannah, Ga.; F. B. Bowes, vice-president, Illinois Central, Chicago; A. R. Smith, vice-president, Louisville & Nashville, Louisville, Ky.; C. R. Capps, first vice-president, Seaboard Air Line, Norfolk, Va.; and Lincoln Green, vice-president, Southern Railway, Washington, D. C.

The Broad Street Station Telegraph Office

The largest railroad telegraph office on the Pennsylvania system is in the general office at Philadelphia, known as "PO." It handles about 15,000 telegrams and reports daily, and requires the services of a chief operator, with five assistants; 41 Morse operators, two telephone message operators, 12 printer operators, and 33 messengers. The office has a switchboard accommodating 200 wires. There are 24 Morse sets, 12 duplex sets, two repeater sets, five Morkrum duplex printers, two telephone message desks, and a time repeater, which is used to send standard time from the Allegheny Observatory, to all of the telegraph offices on the system, at 2 a. m. and 2 p. m. daily. Between Philadelphia and Pittsburgh, by means of coils and condensers which divert the telegraph and telephone messages into separate paths, three telephone circuits are worked on four wires and each separate wire is used as a telegraph circuit. These separate telegraph circuits are duplexed so that by this means eight channels are secured for Morse operation from these four wires. The printers are also duplexed and operated over telephone circuits without the slightest interference with the telephone conversation.

In 1912 J. C. Johnson, then superintendent of telegraph, and now general superintendent of transportation, started what is known as the P. R. R. Educational Course, and this is conducted by correspondence. It includes courses in Electrical Engineering, Mathematics, Mechanical Drawing, Storage Batteries, Signal Engineering, Stenography, Italian-English and Spanish-English. This has enabled all employees to secure technical education without cost, thereby fitting them for more responsible positions in the service.

One of the requirements of employment of messengers in the telegraph service is that they must take up some course of study to fit them for promotion when they become too old for messenger service, and many of these former messengers now occupy positions of trust and responsibility in the various departments.—*The Mutual Magazine*.

MAKING THE RAILROADS WAIT.—The roads are not prospering under the higher freight and passenger rates granted last summer. This is an anxious period for them. The least Congress can do in all fairness is to direct the Treasury to continue paying installments on the balances run up against them through the Administration's short-sighted railroad policy.—*N. Y. Tribune*.

Commission and Court News

Interstate Commerce Commission

The commission has issued an amendment to its regulations governing passes so as to require each carrier to file with the commission a list of the names and titles of officers having authority to issue free transportation and of those having authority to request free transportation of other carriers.

The Interstate Commerce Commission has suspended until June 3, 1921, the operation of schedules which propose to reduce the rates on certain commodities from New York, N. Y., to Galveston, Texas, via the Southern Pacific Co.-Atlantic S. S. Lines (Morgan Line) applicable both as port to port rates and as proportional rates on traffic from seaboard interior points, also proportional rates via the Mallory line.

The commission has suspended until June 1 the operation of proposed through class rates from Albany, N. Y., Cumberland, Md., Elkins, W. Va., Richwood, W. Va., Scranton, Pa., Syracuse, N. Y., Williamsport, Pa., and points taking same rates to Green Bay, Wis., and other points in Wisconsin and Michigan located on west side of Lake Michigan via Manitowoc, Wisconsin.

The commission has ordered an investigation on the petition of the Steubenville, East Liverpool & Beaver Valley Traction Company that because of various franchise ordinances and regulations imposed by state and municipal authorities of Ohio, and of Pennsylvania, the company is unable to increase its rates for intrastate traffic by the amounts authorized by the commission for interstate traffic and under its recent order also for intrastate traffic in Ohio.

The commission has suspended until June 1 the operation of certain tariffs which propose to transfer El Paso, Tex., from the eastern boundary of the Mountain-Pacific territory, taking a 25 per cent increase under Ex Parte 74 decision, to the western group, making applicable instead the interterritorial percentage increase of 33½ per cent, and to transfer 33½ per cent Group J points in Colorado, Nebraska, New Mexico, South Dakota and Wyoming to Group G basis on transcontinental class and commodity rates to the Pacific Northwest.

State Commissions

The Virginia Corporation Commission has received a petition from the Chesapeake Western asking permission to discontinue the operation of passenger trains, this because the improved highways lying parallel to the railroad have led to the increasing use of automobiles, thus taking away from the railroad enough passengers to make the trains unprofitable. This road is 50 miles long, from Elkton, Va., westward to Stokesville.

Court News

Hours of Service Act at Small Telegraph Stations

In an action for violations of the Hours of Service Act the charges were that telegraphers were employed more than nine hours in stations which were "continuously operated night and day." The question was whether the stations, Arlington, Mass., and Amherst, Mass., were of that character. The Arlington station was kept open continuously from 5:45 a. m. to 9 p. m., and Amherst from 6 a. m. to 9 p. m. The District Court for the district of Massachusetts holds that the mere keeping open of a station after 6 p. m. does not bring it within the nine-hour class. What constitutes night operation is a question of fact. The statute apparently refers to the divisions of the business day, 9 o'clock in the evening is apparently on the border line. In doubtful cases, said the court, the purpose for which the office is kept open is held the decisive factor. If kept open primarily for the

convenience of the public, it would not be "operated at night," within the statute. "Operated" means more than "kept open." Too severe limitation on hours of service at small stations would result in their being closed, thereby inconveniencing the public without any corresponding advantage. As the agreed statement of the parties threw no light on the purpose for which the stations were kept open during the evening nor on the sort of work then done at them; there could be no recovery of the penalties.—United States v. Boston & Maine, 265 Fed. 800.

The provisions of the Hours of Service Act on which this case turns are contained in the proviso of the second section, viz., that no train-order operators "shall be required or permitted to remain on duty for a longer period than nine hours in 24, in stations continuously operated night and day, nor for a longer period than 13 hours in stations operated only during the daytime." The question, therefore, was whether these stations were daytime stations, allowing operators to work 13 hours, or day and night stations allowing only nine-hour periods. Unless a station is operated in the night, as well as during the day, the nine-hour limitation does not apply.

The courts have pointed out several times that the statute is far from clear, and that, giving the language its ordinary meaning, it is evident there are places operated longer than "during the daytime," but which are not "continuously operated night and day." It is settled that the expression "continuously operated night and day" is to be understood as including stations which are closed part of the night, if they are operated during the daytime and a substantial part of the night. U. S. v. Atchison, 220 U. S. 37.

The point in this case, therefore, was practically, Is 9 p. m. too late to keep a day station open? And does that make it a day and night station?—U. S. v. B. & M., 265 Fed. 800.

Careless Loading by Shipper

The employees of the owners of a traction engine ran the engine on to a railroad's loading platform to load it on a car, and although they saw that the car was lower than the platform they attempted to run the engine on to the car without the use of blocks, which were at hand. The Iowa Supreme Court holds that the railroad was not liable to the owner of the engine for damages due to its falling to the ground.—Fidelity Thresher Co. v. Chicago, M. & St. P. (Iowa), 176 N. W. 615.

Crossing Bell Out of Order

In a crossing accident case, the New Jersey Supreme Court holds that an instruction to the jury that the railroad having installed an automatic bell at a highway crossing, it was the company's duty to use reasonable care to keep the bell in order and notify the public when it was out of use was erroneous. The statute defining the use of the bell merely absolves a traveler where the bell is installed from the consequences that would otherwise follow from his failure to stop, look and listen, and does not increase the obligations of the railroad.—Johnson v. C. N. J. (N. J.), 109 Atl. 359.

United States Supreme Court

Delivery Without Surrender of Bill of Lading

Does Not Necessarily Render Carrier Liable

In a case under the federal Uniform Bills of Lading Act, the main questions presented to the Supreme Court were, whether, upon the facts, there was a delivery to one in possession of the bill, and, if so, whether the delivery exonerated the carrier, it having been made without requiring surrender of the bill of lading.

In 1917 J. F. French & Co. shipped a carload of potatoes from Bailey, Mich., to Louisville, Ky., over the Pere Marquette and the C. C. & St. L. to their own order, notifying Marshall & Kelsey, Camp Taylor. The shipper attached the bill of lading to a draft for the purchase price and sold and delivered both, duly endorsed in blank, to a bank at Grand Rapids. This bank transmitted the paper to an Indianapolis bank, which, without obtaining payment of the draft, detached the bill of lading and wrongfully delivered it to Marshall & Kelsey. The car having reached Louisville, it was

delivered on request of one Bindner to the Southern Railway to be forwarded to Dumesnil, without requiring surrender of the bill of lading. The endorsed bill of lading had been left by Marshall & Kelsey with Bindner, an employee of the Southern, for safe-keeping. Later, upon the refusal of Marshall & Kelsey to accept the potatoes and honor the draft, possession of the car and bill of lading was returned to the shippers, who accepted them under protest and, without waiving any rights they might have, proceeded to dispose of the potatoes elsewhere in order to make the damage as light as possible for all concerned. The shippers then sued the Pere Marquette for compensation, contending that the carrier, by delivering the car upon request without requiring surrender of the bill of lading, had become liable for conversion of the potatoes. The shippers recovered judgment, which was affirmed by the State Supreme Court, 204 Mich. 578.

The railroad defended on the ground that there was a delivery at Louisville which exonerated it under Section 9 of the Federal Uniform Bill of Lading Act. Was the carrier liable for misdelivery, because the car was sent from Louisville to Dumesnil upon Bindner's request without surrender of the bill of lading?

First. The United States Supreme Court holds that having brought the goods to the destination named in the bill of lading the railroad's only duty under its contract was to make a delivery at that place; and it could make that delivery by turning the goods over to another carrier for further carriage. The fact that in forwarding the car the Big Four (C. C. & St. L.) used the original waybill, striking out the word "Louisville" under the "destination" and substituting "Dumesnil, Ky. So. R. R.," is held of no significance. The shipment from Louisville to Dumesnil was a wholly new transaction. In turning over the car for this new shipment the railroad made a disposal of it in assumed discharge of its obligations, which was, in legal contemplation, a delivery. Second, the delivery at Bindner's order was one which the carrier was justified in making under the provisions of section 9 of the act. The Big Four had no information, and there was nothing in the circumstances which should have led it to doubt that Bindner was lawfully entitled to request that the car be shipped to Dumesnil.

Finally, did such a delivery exonerate the carrier upon suit by the shipper when it failed to require surrender of the bill of lading as provided in that instrument? In the Supreme Court's opinion there is no exoneration where loss to shipper or subsequent purchaser of the bill results from such a failure; but where the loss suffered is not the result of the failure to take up the bill, mere failure to take it up does not defeat the exoneration.

There is nothing in the act which imposes upon the carrier a specific duty to the shipper to take up the bill of lading. Under section 8 the carrier is not obliged to make delivery except upon production and surrender of the bill of lading; but it is not prohibited from doing so. If instead of insisting upon production and surrender of the bill it chooses to deliver in reliance upon the assurance that the deliverer has it, so far as the duty of the shipper is concerned the only risk it runs is that the person who says that he has the bill may not have it. If such proves to be the case the carrier is liable for conversion and must of course indemnify the shipper for any loss. Such liability arises not from the statute but from the obligation which the carrier assumes under the bill of lading.

In this case the real cause of the loss was the wrongful surrender of the bill by the Indianapolis bank to Marshall & Kelsey by means of which the car was taken to Camp Taylor and the shipper deprived of the Louisville market. The shippers deliberately assumed the loss by their voluntary act in taking back the draft and bill which they had sold to the Grand Rapids bank. The delivery was made to one in possession of the bill of lading who could, and doubtless would, have surrendered it had he not been prevented by distance from doing so. To hold a carrier liable under such circumstances would seriously interfere with the convenience and the practice of business. For these reasons the judgment of the state court was reversed.—Pere Marquette v. French & Co. Decided January 17, 1921. Opinion by Mr. Justice Brandeis.

Foreign Railway News

Roumania Gets Credits for Purchase of Locomotives

LONDON.

It is reported that the banks of Roumania have granted important credits to the government to enable it to make substantial increases to the motive power of the Roumanian railways.

Mexico to Purchase Equipment

The Minister of Finance of Mexico has arranged with American firms for a credit of \$5,000,000, the proceeds of which are to be devoted to the purchase of equipment for the Mexican railways, according to cable advices from commercial attache Jackson at Mexico City.

Chinese Line to Purchase Passenger Cars

The Tientsin-Pukow Railway will purchase, according to information received by commercial attache Julean Arnold, 11 all steel passenger trains of 5 cars each. The company is also inquiring for ferries, with the view of establishing a train ferry across the Yantze river between Pukow and Nanking, in order to establish a through train service from Peking to Shanghai.

Chilean Road to Electrify

The Chilean government is asking for bids, to be opened in April, for the electrification of the government line from Valparaiso to Santiago, according to reports received by the Guaranty Trust Company. Bids are also asked for quantities of rails, switches and track accessories, for use on the government roads in the northern and central parts of the country according to reports.

Exports of Car Wheels and Axles in November

Car wheels and axles valued at \$738,825 were exported in November. This figure shows a substantial improvement over the similar total, \$543,753, for October. The largest shipment of this material, valued at \$309,683, was sent to France. Cuba comes next on the list with exports valued at \$131,483. The detailed figures by countries as compiled by the Bureau of Foreign and Domestic Commerce are as follows:

Countries	Dollars	Countries	Dollars
France	309,683	Argentina	1,354
Spain	56,248	Brazil	19,451
England	103	Chile	5,455
Canada	30,477	Colombia	3,929
Costa Rica	5,494	Peru	4,650
Honduras	52	Uruguay	1,127
Panama	2,277	Venezuela	2,138
Salvador	239	British India	13,229
Mexico	50,197	Dutch East Indies	60,506
Newfoundland and Labrador	1,035	Japan	10,987
Trinidad and Tobago	2,242	Turkey in Asia	272
Other British West Indies	155	Australia	279
Cuba	131,483	Philippine Islands	20,749
Virgin Islands	328		
Dominican Republic	4,686	Total	738,825

Lack of Locomotives Hampers Serbia

Commerce in Serbia is almost at a standstill, because of the lack of locomotives, according to Col. W. G. Atwood, technical adviser of the government of the Serbs, Croats and Slovenes, who has just returned to America after an absence of several years. With the assistance of several American engineers, 500 miles of railway were rebuilt last year. In spite of this, however, one million tons of grain are awaiting export, impossible because of inadequate railway facilities. Col. Atwood has made several reconnaissance trips over the mountains between Belgrade and the Adriatic and finds that railways can be built connecting the rich interior with the sea with comparatively easy grades and at a moderate cost.

A great help in rehabilitating the Serbian railways, according to Col. Atwood, is the entire absence of labor unrest in that country.

Progress Made by Mexican Lines

According to press reports from Houston, Tex., the director general of the National Railways of Mexico, F. Perez, has been in Texas conferring with officers of some of the Texas lines and has succeeded in securing the loan of a number of locomotives for use temporarily on the Mexican government lines to clear up the traffic congestion. W. G. McAdoo, formerly director general of railroads in the United States, has been selected to take charge of the Mexican roads for the time being, according to despatches from Mexico City. Mr. McAdoo is now in Mexico City.

English Railway Rate Committee Reports

LONDON.
The Rates Advisory Committee which was appointed by Sir Eric Geddes, minister of transport, for the railways of Great Britain during the fall of 1919, has recently made its report on the general revision of railway rates and charges for the railways of Great Britain in a document of over 60,000 words.

This committee was charged to report on: (1) the principles which should govern the fixing of freight and passenger rates, (2) the classification of merchandise traffic, and (3) the rates to be charged for parcels, perishable merchandise and other traffic conveyed by passenger train.

The committee was made up of a chairman, F. Gore-Browne, king's counsel, nominated by the Lord Chancellor, and of four other members as follows: Walter W. Berry, representing agriculture, nominated by the Board of Trade; W. J. Davis, representing labor, nominated by the Minister of Labor; W. A. Jepson, representing transportation and nominated by the Minister of Transport, and L. A. Martin, representing trade, nominated by the Board of Trade. W. M. Acworth, a prominent railway economist, also served on the committee in a consulting capacity at the suggestion of the Minister of Transport.

Two fundamental principles were recommended by the committee as governing all questions in the establishment of rates. These were: (1) Such charges must in no case be less than the cost to the railway companies of rendering the required services; (2) they must in no case be more than the value of the services to the shippers.

The committee proposed the establishment of a permanent rate tribunal consisting of three permanent paid members giving their whole time to the work, one being a person experienced in railway business, a second being a person experienced in commercial affairs, and the chairman being an experienced lawyer having no connection with railway or trading concerns and not holding judicial office. In addition to this tribunal, the committee recommended two panels, one to be called the shippers' panel, to be nominated by the Ministry of Transport in collusion with such associations, federations and chambers of commerce and agriculture as he shall consider best to represent the shippers' interests; the other panel to be called the railway panel and to be nominated by the Ministry of Transport in consultation with the Railway Companies' Association. These panels are to work with the rate tribunal as the latter sees fit, and in the event of a permanent member of the tribunal, other than the chairman, being unable to attend on any hearing, a member of the panel selected by the minister of transport would be authorized to take his place with all the power and duties of the permanent member.

The functions of the new tribunal would be to classify freight and fix freight rates, except in cases provided for by law, and to fix passenger fares.

The committee recommends the establishment of uniform rates, depending on distance, and the separation of terminal and cartage charges from conveyance rates. At present the rates on various railways for transportation of the same commodities over the same distance vary up to 35 per cent. The law provides for the maintenance of the existing rate structure until February, 1923, and it is not proposed that new rates should be established until that time.

Equipment and Supplies

Locomotives

THE TURNBULL CLIFFS FURNACE COMPANY, Cleveland, Ohio, has ordered 2 locomotives from the American Locomotive Company.

Freight Cars

THE TENNESSEE COAL, IRON & RAILROAD COMPANY has ordered 157, 70-ton gondola cars from the Chickasaw Shipbuilding Company, Birmingham, Ala.

THE TIENSIN-PUKOW, reported in the *Railway Age* of January 28, as contemplating coming in the market soon for 300 gondola cars, is now in the market for this equipment, also for 200 box cars.

THE LOUISVILLE & NASHVILLE, reported in the *Railway Age* of January 14 as inquiring for 2,700 freight cars, has ordered this equipment as follows: 1,500 box cars, and 100, 40-ton stock cars from the American Car & Foundry Company; 500 box cars from the Mt. Vernon Car Manufacturing Company; 300, 40-ton coke cars, and 300, 55-ton gondola cars from the Chickasaw Shipbuilding Company.

Passenger Cars

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, Pa., is in the market for a second-hand 200 hp. McKeen or Hall-Scot all steel gasoline motor car, having smoking, passenger and baggage compartments.

Iron and Steel

THE UNION PACIFIC has ordered 10,000 tons of rails from the Illinois Steel Company.

Miscellaneous

CARR BROTHERS, INC., 65 Broadway, New York, has placed an order for 450 axles to be used on locomotives and cars on the Mexican railroads.

THE BOARD OF DIRECTORS OF THE UTAH-IDAHO CENTRAL, operating the electric line between Ogden, Utah, and Preston, Idaho, has authorized the issuance of \$300,000 in notes for the purpose of purchasing equipment and rolling stock and making improvements. It is said the greater part of the money will be used in the purchase of freight cars.

Signaling

THE RICHMOND, FREDERICKSBURG & POTOMAC has contracted with the Union Switch & Signal Company for an electro-pneumatic interlocking, 28 working levers, to be installed at A F block station, near Alexandria, Va., the junction with the Chesapeake & Ohio and the Southern. This apparatus will take the place of a 60-lever mechanical machine. The tower, of brick, is now under construction.

BOOK PAPER FROM SOUTHERN PINE AND RED GUM.—The U. S. Forest Products Laboratory announces that it has demonstrated the feasibility of making high grade book paper from these woods. One cord each of loblolly pine and red gum will make one ton of paper at a cost which will allow of a good margin of profit at prevailing prices. Additional information and samples of paper can be obtained from the Forest Products Laboratory, Madison, Wis., on request.

Supply Trade News

J. D. Shaver has been made sales manager of the Cleveland Crane & Engineering Company of Wickliffe, Ohio.

W. F. Warden, president of the Burt Manufacturing Company, Akron, Ohio, died of heart trouble at Deland, Fla., on January 19.

George E. Pratt, who is interested in the **Simplex Safety Apparel Company**, Chicago, has been appointed sales engineer of this company.

John Hyland, formerly manufacturers' agent at Atlanta, Ga., is now in the sales department of **The Lehon Company**, with headquarters at Chicago.

L. A. Lenhart, plant manager of the General American Tank Car Corporation, East Chicago, Ind., has resigned to become vice-president of the Youngstown Steel Car Company, Niles, Ohio.

James W. White has joined the sales organization in the New York office of the **Okonite Company**, Passaic, N. J. Mr. White was formerly in the service of the General Railway Signal Company and remained there for four years and was then with the Union Switch & Signal Company for about five years.

The Black & Decker Manufacturing Company, Baltimore, Md., will open a new branch office and service station at 75 Fremont street, San Francisco, Cal., on February 1. This office will have jurisdiction of the company's affairs over the entire Pacific Coast territory and will be in charge of **F. A. Johnson**.

Harry M. Evans, eastern sales manager of the **Franklin Railway Supply Company, Inc.**, has been elected vice-president of the company, with offices at 30 Church street, New York. Mr. Evans was born at Meadville, Pa., and was educated in the public schools at that place. He began railroad work as a call boy on the Erie, and served in various positions in the mechanical, transportation and traffic departments of that road. He entered the mechanical department of the Franklin Railway Supply Company in October, 1908, as traveling representative. In August, 1916, he became assistant western sales manager, and in January, 1917, was appointed eastern sales manager, which position he was holding at the time of his recent election as noted above.



Harry M. Evans

J. L. Jackson has been appointed manager of the West Coast department of the **Mummert Lumber & Tile Company**, with headquarters at Chicago, effective January 20. Previous to his present connection, Mr. Jackson was with the Duncan Lumber Company, of Portland, Ore., which company he had joined in 1913, after two years' service with the Douglas Fir Sales Company, of Portland.

Louis B. Rhodes, southeastern sales representative of the Vapor Car Heating Company, Inc., with headquarters at Richmond, Va., died of heart failure on January 25, at Nash-

ville, Tenn. Mr. Rhodes was formerly master mechanic on the Georgia Southern & Florida and had served as superintendent of motive power of the Virginian. Later he was with the Ward Equipment Company. He was in the service of the Standard Heat & Ventilation Company at the time when the latter company was consolidated with the Chicago Car Heating Company in the organization of the Vapor Car Heating Company.

A. T. Kuehner has been appointed mechanical engineer of the **Standard Stoker Company, Inc.**, New York. Mr. Kuehner is the inventor of the Keener journal box for locomotive drivers and trucks. This device will be manufactured and placed on the market by the Standard Stoker Company. Mr. Kuehner, until his recent appointment, was on the staff of C. A. Gill, superintendent of motive power of the Baltimore & Ohio.

Obituary

Edmund M. Blake, production engineer for **Chas. R. McCormick & Co.**, San Francisco, Cal., and president of the Railroad Tie Producers Association, whose death on January 12, at San Francisco, was

noted in the *Railway Age* of January 14 (page 216), was born at Taunton, Mass., on August 13, 1874. Mr. Blake was educated at Amherst College and Harvard University, graduating from the former institution in the class of 1897 and completing his studies at the Lawrence Scientific School at Harvard in 1899. Upon leaving college, he entered the service of his father, Percy M. Blake, a consulting hydraulic engineer, and since this time has had a wide and varied experience,



E. M. Blake

both in this country and abroad. During the first few years of his professional career, he served as a designer with the Eastern Bridge & Structural Company, Worcester, Mass., was assistant engineer for the New York Rapid Transit Commission and was a designer with the Brown Hoisting Machinery Company at Cleveland, Ohio. In 1902, he returned to the employ of Percy M. Blake as principal assistant engineer and during the next four years had charge of steam and water piping for a number of waterworks systems. From 1906 to 1908, he was in private practice in Boston, Mass., and had charge of the design and installation of waterworks and hydraulic systems at Wareham, Wrenham, Westford and at Provincetown, Mass. In 1909, after a year's service as manager of the Idaho Irrigation Company, he entered private practice in Boise, Idaho, which practice he left two years later to become engineer in charge of the improvement of the Neponset river, undertaken by the Massachusetts State Department of Health. In May, 1916, he entered the employ of the Holbrook, Cabot & Rollins Corporation, as engineer on drydock work at South Boston, Mass. From October, 1917, to December, 1918, when he became associated as production engineer with Chas. R. McCormick & Co., he fulfilled a number of war commissions with credit to himself. Mr. Blake, in 1905, was sent abroad by the United States Department of Agriculture to investigate and report on drainage and irrigation in Italy. While abroad he also inspected and reported on the Paris subways and the London tunnels. At the time of his death he was president of the National Association of Railroad Tie Producers, his death occurring shortly before the opening of the convention of this association at San Francisco, to which he had given so much of his time.

S. W. Dudley Leaves Westinghouse Organization

S. W. Dudley, widely known authority on matters pertaining to train and traction control, retired on February 1 as chief engineer of the Westinghouse Air Brake Company,



S. W. Dudley

Wilmerding, Pa., to accept a professorship of mechanical engineering at Yale University.

Mr. Dudley has been associated with the air brake company for 17 years. Starting as a special apprentice in 1903, he spent the summer of that year and the next in the plant, returning to school to complete a postgraduate course during the other seasons. When he established permanent connections with the organization in 1905, he was attached to the office of the late Walter V. Turner, then mechanical engineer of

the Westinghouse Air Brake Company. Here he was assigned as a member of the party in charge of the first road tests of the Type R triple valve between Pittsburgh and Fairchance, on the Pennsylvania Railroad, later acting as engineer's assistant during a series of important demonstrations of the ET equipment and the Type R passenger triple valve on the New York Central. He was charged with the responsibility of compiling much of the data relating to these demonstrations, which resulted in the development of the high emergency retained features which were added to the Type R triple valve to complete the Type L, later adopted for the motor cars of the New York Central's electrified zone.

In 1906, Mr. Dudley was assigned to the New York office to follow the installation, operation and maintenance of new air brake equipment that was placed in service on electric locomotives and motor cars during the inauguration of the New York Central's terminal electrification. A year later he was called back to Wilmerding to take charge of the air brake publicity department, where he remained until 1909, when he was appointed assistant mechanical engineer. In 1910 he became assistant chief engineer (in charge of operation), and in 1914 he was advanced to the position of chief engineer, which title he retained up to the time of his resignation.

Mr. Dudley graduated from Yale University, to which he now returns, with the class of 1900, completing thereafter a post-graduate course which qualified him for his M.E. degree.

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Photo by Keystone View Co.

Summit of Pikes Peak, Colorado, with Rack Rail Train

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company will build a complete ice plant at Hobart Station, Cal., which will cost approximately \$500,000 and will include a 500-ft. icing dock, an office building, and a cooling tower. The company also contemplates rearrangements of its facilities at Calwa, Cal., to make space for an addition to the existing ice plant, which will cost \$90,000. The Santa Fe will install a 120-ft. turntable at Clovis, N. M., at a cost of \$46,000.

ATCHISON, TOPEKA & SANTA FE.—This company contemplates an 11-stall addition to its roundhouse at Newton, Kan.

ATLANTIC COAST LINE.—This company will build a reinforced concrete bridge including a draw span at Moore Haven, Fla. The work will be done by company forces.

CAROLINA, CLINCHFIELD & OHIO.—This company will make improvements and additions to its passenger station at Johnson City, Tenn., at a cost of about \$7,500. The work will be handled by company forces.

CHICAGO, BURLINGTON & QUINCY.—This company is accepting bids for the construction of a hotel and restaurant at Cody, Wyo.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—This company is improving its yard facilities at Jeffersonville, Ind., by extending 7 yard tracks at a cost of approximately \$143,000. The company contemplates other terminal improvements at Jeffersonville in the future.

GREAT NORTHERN.—This company contemplates the construction of car shops at Minot, N. D.

MISSOURI, KANSAS & TEXAS.—Proposals have been requested for the construction of a reinforced concrete inbound freight-house, 50 ft. by 600 ft., with second-story office, 50 ft. by 100 ft., and platform, 8 ft. by 600 ft. and 58 ft. by 100 ft., replacing the present brick and frame station at Jefferson street and Ross avenue, Dallas, Tex.

WESTERN MARYLAND.—This company has awarded a contract to the Wellman Seaver Morgan Company, Cleveland, Ohio, for the erection of a ship coal handling device of steel construction at Port Covington, Baltimore, Md.

THE AMERICAN ELECTRIC RAILWAY ASSOCIATION, in a report on the condition of the electric railway industry throughout the country for the past year finds indications of a gradual and steady approach to a stable basis. Regulatory bodies, recognizing that fair rates of return are essential to the maintenance of good service, have steadily ordered relief throughout the country; and, also, they recognize that rehabilitation of lines will be a slow process and that at least the present advanced rates must be maintained for some time even if falling costs, anticipated but not realized as yet, should come. Badly needed improvements have been deferred by virtually every company.

The report shows that 548 cities, representing more than 90 per cent of the riding population in cities, are paying fares ranging from five cents with a one-cent charge for transfers, to a flat rate of ten cents. One hundred and twelve cities pay a ten-cent fare. Electric railway receiverships are not so numerous. There were only 16 in 1920, representing a total capital stock of \$25,313,655, as compared with 48 receiverships, representing a capital stock of \$221,259,354, in 1919. During the year 450 miles of track were dismantled and 308 miles of track abandoned.

From every part of the United States the reports show not only regulatory bodies but car riders generally as taking the greatest interest in the restoration of companies to a healthy state. The inclination to prevent companies from receiving sufficient return to maintain good service is believed to be confined to a small number of persons.

Railway Financial News

ALABAMA & VICKSBURG.—This company has applied to the Interstate Commerce Commission for authority to issue notes to the United States for loans from the revolving fund, for the refunding of part of its mortgage debt and for the purchase of locomotives. It is proposed to give notes to the government for \$1,394,000 for a loan and other notes to the amount of \$542,900, and to take up the entire issue of \$1,936,000 of mortgage bonds, exchanging the \$542,900 of notes for a part of the outstanding bonds. Authority is also asked for another note to the United States for a loan of \$170,000 for the purchase of locomotives, and it is proposed to issue \$4,000,000 of first mortgage bonds under a new mortgage which will be used as collateral for the various notes. The bonds will bear interest at 6 per cent, dated April 1, 1921, and maturing April 1, 1951.

ALABAMA, TENNESSEE & NORTHERN.—The Interstate Commerce Commission has approved a loan of \$90,000 to this company to aid it in meeting its maturing indebtedness.

ATCHISON, TOPEKA & SANTA FE.—This company has applied to the Interstate Commerce Commission for a certificate authorizing it to undertake the operation of the leased line of the Buffalo & Northwestern.

BALTIMORE & OHIO.—This company has been authorized by the Interstate Commerce Commission to nominally issue and hold in its treasury \$2,744,000 of its refunding and general mortgage bonds, series B. In the same order authority was granted to subsidiaries of the Baltimore & Ohio to issue and deliver their bonds to its nominees in payment for additions, improvements and betterments to the amount of \$1,860,000.

This company has applied to the Interstate Commerce Commission for authority to assume rental payments amounting to \$617,769 under an equipment trust agreement of December 1, 1917, between the Seaboard Air Line and the Commercial Trust Company, trustee.

BIRMINGHAM, SELMA & MOBILE.—This company has applied to the Interstate Commerce Commission for a loan of \$25,000 for 10 years to assist it in completing an extension of its line.

BUFFALO, ROCHESTER & PITTSBURGH.—This company has declared a semi-annual dividend of \$3 on the common stock, and the regular semi-annual dividend of \$3 on the preferred stock, both payable February 15 to stock of record February 10. Previously the company had been paying dividends of \$2 a share on the common semi-annually.

CENTRAL OF GEORGIA.—This company has been authorized by the Interstate Commerce Commission to enter into a proposed equipment trust agreement for the issuance of \$650,000 of equipment trust certificates, for the purchase of 7 locomotives, 13 passenger cars and 4 express cars at an estimated total cost of \$1,088,835.

CENTRAL & GULF.—This company has applied to the Interstate Commerce Commission for a loan of \$500,000 for 15 years to assist the company in the purchase of equipment and in completing an extension of 30 miles to Pine Bluff, Ark.

CENTRAL WISCONSIN.—The Interstate Commerce Commission has issued a certificate authorizing this company to acquire and operate the railroad owned by the Fairchild & Northeastern, extending from Cleghorn to Owen, Wis., 65 miles.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—The Interstate Commerce Commission has approved a loan of \$115,000 to this company to aid the company in providing itself with additional motive power consisting of 5 Mikado freight locomotives at a total estimated cost of about \$340,000. The carrier itself is required to finance about \$225,000 to meet the loan of the government.

CHICAGO, MILWAUKEE & ST. PAUL.—Samuel McRoberts has been elected a director to succeed John D. Ryan, who has resigned because of Section 10 of the Clayton Act.

CHESAPEAKE & OHIO.—This company has been authorized by the Interstate Commerce Commission to issue \$50,225,000 of common capital stock from time to time in exchange for its 5 per cent convertible 30-year secured gold bonds at certain rates specified in the order.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—This company has been authorized by the Interstate Commerce Commission to guarantee a promissory note of the Louisville & Jeffersonville Bridge & Railroad Company for \$108,000 to the United States government.

DENVER & RIO GRANDE.—Affidavits alleging that fraudulent transactions by interlocking directorates led to the receivership sale of this road were filed by J. L. Webster, an attorney for the stockholders' committee, on January 28, at St. Louis, Mo., with Federal Judges Walter H. Sanborn and Robert E. Lewis. The court gave the defendants in the suit 30 days in which to file a counter petition. Mr. Webster asserted that the physical property of the road was valued at \$225,000,000, although it was sold for \$5,000,000, and the securities held by the road were worth \$9,722,000 alone. Mr. Webster announced that after the briefs had been filed he would institute proceedings at Denver to have the sale set aside.

ELBERTON & EASTERN.—This company has applied to the Interstate Commerce Commission for authority to issue \$12,050 of first mortgage 5 per cent gold bonds held in its treasury.

FLEMINGSBURG & NORTHERN.—This company has applied to the Interstate Commerce Commission for a loan from the revolving fund of \$10,000 for three years to enable it to retire floating indebtedness.

FORT SMITH & WESTERN RAILWAY.—This company has applied to the Interstate Commerce Commission for authority to issue 62,400 shares of a total of 70,000 shares authorized, of no par value, common stock, \$1,500,000 of a total authorized issue of \$3,500,000 of 7 per cent first mortgage bonds and \$3,744,000 of a total authorized issue of \$10,000,000 of 6 per cent second mortgage bonds, in connection with its reorganization of the Fort Smith & Western Railroad. The new securities are to be exchanged for \$7,000,000 of first mortgage bonds of the railroad company.

GEORGIA NORTHERN.—This company has applied to the Interstate Commerce Commission for a loan of \$200,000 for 15 years to assist it in the purchase of rolling stock.

GREENE COUNTY.—This company has applied to the Interstate Commerce Commission for a loan of \$60,000 from the revolving fund to retire various items of indebtedness.

HOCKING VALLEY.—The Interstate Commerce Commission has approved a loan of \$1,665,000 to this company to enable the company to provide itself with additions and betterments to equipment and to way and structures.

ILLINOIS CENTRAL.—This company has applied to the Interstate Commerce Commission for authority to issue \$3,564,000 of equipment trust certificates, series G, on the Philadelphia plan, to finance 60 per cent of the cost of 75 locomotives. It is proposed to sell the certificates to Kuhn, Loeb & Co. at 96 per cent of par or on a basis of 7.15 per cent.

INDIANA HARBOR BELT.—The Interstate Commerce Commission has issued an order extending the time within which this company was authorized to issue \$2,200,000 of promissory notes from 60 days to six months after November 6, 1920.

INTERNATIONAL & GREAT NORTHERN.—At a meeting of the note-holders' protective committee on January 21, Frederick Strauss, vice-chairman, was elected chairman to succeed Alexander J. Hemphill, and Winslow S. Pierce was elected a member of the committee.

MARION & RYE VALLEY.—This company has been authorized by the Interstate Commerce Commission to guarantee a note of the Virginia Southern to the Secretary of the Treasury for \$38,000.

NEW YORK CENTRAL.—A. T. Hardin, vice-president in charge of operation, has been elected a director to succeed William K. Vanderbilt, deceased.

NORFOLK & WESTERN.—The Interstate Commerce Commission has issued a certificate authorizing the acquisition and operation by this company of feeder lines owned by the Tug River & Kentucky and the Williamson & Pond Creek.

NORTHERN PACIFIC.—This company has applied to the Interstate Commerce Commission for a certificate authorizing it to acquire the property of the Billings & Central Montana.

NORTHERN PACIFIC.—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon a branch line, 1.8 miles, with 1.75 miles of spur track, in Richland County, N. D.

NORTHERN PACIFIC.—Frank L. Polk, formerly Acting Secretary of State, E. M. Willis and A. H. Gillard, have been elected directors succeeding J. P. Morgan, Lewis Cass Ledyard and Payne Whitney, who resigned in compliance with Section 10 of the Clayton Act.

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY.—This company has been authorized by the Interstate Commerce Commission to issue first and refunding mortgage bonds payable in dollars in exchange for not exceeding £3,782,400 of similar bonds which may be surrendered by the holders as provided in the company's first and refunding mortgage dated January 3, 1911.

PANHANDLE & SANTA FE.—This company has applied to the Interstate Commerce Commission for a certificate to operate the leased line of the North Texas & Santa Fe.

PENNSYLVANIA.—Kuhn, Loeb & Co. and other bankers have sold an issue of \$60,000,000, 15-year, 6½ per cent bonds, due February 1, 1936. The bonds were sold at 99¼ and interest, to yield about 6.58. They are to be secured by \$60,000,000 Pennsylvania Railroad general mortgage 6 per cent gold bonds, series "C," due April 1, 1970, and \$6,000,000 Philadelphia, Baltimore & Washington Railroad general mortgage 6 per cent gold bonds, series "A," due April 1, 1960.

PEORIA & PEKIN UNION.—The Interstate Commerce Commission has approved a loan of \$1,799,000 to this company, for the purpose of aiding the company in meeting the maturity, February 1, 1921, of its bonded indebtedness in an aggregate principal amount of \$2,994,000. The carrier itself is required to finance \$1,195,000 to meet the loan of the government. The company has also been authorized to extend the time of maturity of its first and second mortgage bonds for five years from February 1, 1921, to increase the interest rate on the first mortgage bonds from 6 per cent to 7 per cent and on the second mortgage bonds from 4½ to 7 per cent.

The Lake Erie & Western has applied to the Interstate Commerce Commission for authority to guarantee a 6 per cent 5-year promissory note of the Peoria & Pekin Union for \$181,000. The Illinois Central has similarly applied for authority to guarantee 25 per cent of a proposed loan of \$1,861,000 to the Peoria & Pekin Union, and the Peoria & Eastern for authority to guarantee a 6 per cent, 5-year promissory note of the Peoria & Pekin Union for \$226,250. The notes are to the United States Government.

PHILADELPHIA & READING.—This company has applied to the Interstate Commerce Commission for a loan of \$1,185,625 for 15 years, to enable the company to pay approximately 20 per cent cash for the purchase of 25 consolidation freight locomotives at \$75,450 each, 5 switching locomotives at \$36,000, 5 passenger locomotives at \$61,000. The company proposes to issue or join in the issue of equipment trust certificates for the balance, 50 per cent of the amount of the certificates to be applied as security for the loan and the balance to be sold on the best available terms.

PORTLAND, ASTORIA & PACIFIC.—The Interstate Commerce Commission has issued a certificate authorizing the acquisition and operation by this company of the line owned by the United Railways Company from Wilkesboro to Linnton, Oregon, 18.64 miles, and another certificate authorizing the United Railways Company to abandon operation of the line.

RARITAN RIVER.—This company has applied to the Interstate Commerce Commission for authority to issue \$100,000 of promissory

notes at 6 per cent to reimburse the treasury for money expended out of income for investment.

RICHMOND TERMINAL.—This company has been authorized by the Interstate Commerce Commission to issue 35 promissory notes aggregating \$3,100,000, with interest at 6 per cent. The notes are payable to the Richmond, Fredericksburg & Potomac and the Atlantic Coast Line.

UNION PACIFIC.—This company has been authorized by the Interstate Commerce Commission to issue first lien and refunding mortgage bonds payable in dollars in exchange for not exceeding £771,600 of similar bonds which may be surrendered by the holders as provided in the company's mortgage dated June 1, 1908.

VALDOSTA, MOULTRIE & WESTERN.—Special Master J. W. Talbert will offer this road for sale on February 22 at Valdosta, Ga., at the upset price of \$165,000.

VIRGINIA SOUTHERN.—The Interstate Commerce Commission has approved a loan of \$38,000 to this company to aid the carrier in meeting its maturing indebtedness. The carrier itself is required to finance \$37,000 to meet the loan of the government.

The Virginia Southern has applied to the Interstate Commerce Commission for a loan of \$75,000 for 10 years to enable it to take up a bank loan.

WESTERN ALLEGHENY.—This company has applied to the Interstate Commerce Commission for authority to issue demand notes to the amount of \$100,000.

WESTERN MARYLAND.—This company has been authorized by the Interstate Commerce Commission to issue \$225,000 of 6 per cent marine equipment gold notes under a proposed agreement of conditional sale for the purchase of a car float and to sell the notes at not less than par and accrued interest.

This company has applied to the Interstate Commerce Commission for authority to issue \$3,000,000 of equipment gold notes, consisting of \$1,500,000 of a preferred series at 7 per cent which have been sold at par and \$1,500,000 of a junior series at 6 per cent, which it is proposed to pledge as collateral with the Secretary of the Treasury. The notes are for the purchase of 40 consolidation freight locomotives, and they are to be paid off at the rate of \$100,000 a year for each series from 1922 to 1936.

WICHITA FALLS & NORTHWESTERN.—This company has applied to the Interstate Commerce Commission for an order authorizing the issue of a series of 10-year, 6 per cent receivers' certificates, to be pledged as collateral for the amounts found to be due the director general of railroads.

WISCONSIN & NORTHERN.—This company has been authorized by the Interstate Commerce Commission to issue \$49,400 of first mortgage 6 per cent gold bonds and to sell them at not less than 90 per cent of par. The company had applied for authority to sell them at not less than 75.

Dividends Declared

BUFFALO, ROCHESTER & PITTSBURGH.—Common, \$3 semi-annually; preferred, \$3, semi-annually; both payable February 15 to holders of record February 10.

DELAWARE & HUDSON.—2½ per cent, quarterly, payable March 21 to holders of record February 26.

ILLINOIS CENTRAL.—1¼ per cent, quarterly, payable March 1 to holders of record February 4.

NORFOLK & WESTERN.—Common, 1¼ per cent, quarterly, payable March 19 to holders of record February 28.

PENNSYLVANIA.—1½ per cent, quarterly, payable February 28 to holders of record February 1.

THE ILLINOIS CENTRAL, by advertising in the newspapers throughout the territory served by its lines, is calling attention to the highway crossing problem. The advertisement states that it is the "safe" crossing which is the most dangerous; and that electric bells, watchmen, and signs at crossings should warn the driver to be constantly on the alert. During the four years ended December 31, 1920, 4,350 persons were killed and 12,750 injured in automobile grade-crossing accidents in the United States, and for the same period 158 were killed and 659 injured in that class of accidents on the Illinois Central System.

Railway Officers

Executive

C. D. Mackay, whose appointment as vice-president of the High Point, Randleman, Asheboro & Southern, Yadkin, Carolina & Northwestern, Tallulah Falls, Hartwell, Danville & Western and Blue Ridge (all subsidiaries of the Southern), was announced in the *Railway Age* of January 28 (page 309), was born September 22, 1884, at Durham, N. C. He was educated in the public schools and entered railway service in 1902 as a clerk in the local freight office of the Southern at Raleigh, N. C. From March to December, 1903, he served as a stenographer in the office of the master mechanic of the Seaboard Air Line at Raleigh. On the latter date he became a clerk in the office of the first vice-president of the Southern. From September, 1908, to April, 1915, he was secretary to the first vice-president. On the latter date he was made secretary of the Southern's subsidiary companies. In 1919 he was promoted to assistant to vice-president of those companies, and was serving in that capacity at the time of his recent promotion.

Financial, Legal and Accounting

L. M. Bradish has been appointed assistant general auditor in charge of receipts of the Pullman Company. **H. R. Holmgren** has been appointed assistant general auditor. **B. C. H. Olson** has been appointed auditor of disbursements and **H. J. England** auditor of valuation. These appointments were effective January 1.

William H. Burns, general auditor of the Chicago, Rock Island & Pacific, whose election to succeed Frank Noy as head of the accounting department of the Rock Island, was announced in the *Railway Age* of January 28 (page 309), was born in Chicago on April 23, 1865. He entered railway service in 1880 as clerk to the storekeeper on the Rock Island, but left the service of the company shortly to complete his education. He returned to the employment of the Rock Island in 1882, being engaged in clerical work under the roadmaster. In January, 1883, he was transferred to the office of the freight auditor where he served until June, 1898. On the latter date he was promoted to freight auditor, a position which he held until July, 1902, when he was made auditor of freight traffic. In October, 1905, another promotion made him assistant general auditor, and in 1909 he became general auditor of the Rock Island. During the period of federal control, Mr. Burns was federal auditor, resuming his former duties as general auditor when government control ceased. Mr. Burns retains his former title of general auditor, but has been given also the duties of the former controller.

W. H. Anderson has been appointed paymaster on the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, succeeding Garner Ranney, who has been assigned to other duties. **W. W. Scannel** has been appointed auditor of station accounts, succeeding Mr. Anderson. **E. F. Hoy** has been appointed car accountant, succeeding Mr. Scannel, and **J. Dewar** has been appointed assistant car accountant. The appointments and changes are effective January 15.



W. H. Burns

Operating

H. Hulatt, consulting manager of telegraphs of the Grand Trunk, has been appointed manager of telegraphs, Western Lines, with headquarters at Montreal, effective February 1. The position of consulting manager of telegraphs has been abolished.

H. M. Gargan, whose promotion to superintendent of the Champlain division of the Delaware & Hudson was announced in the *Railway Age* of January 28 (page 309), was born December 12, 1886, in New York City. He attended the public schools in that city and Fordham Preparatory School and was graduated from Fordham University in 1909 with the degree of bachelor of science. Mr. Gargan first entered railway service on January 1, 1914, as a yard clerk at Wilkes-Barre, Pa. On March 1 of the same year he was promoted to chief clerk to the general yardmaster and served in that capacity until April 15, when he was promoted to assistant night yardmaster. On June 1 he became night yardmaster of the Hudson yard. On April 15, 1915, he was promoted to general yardmaster of the same yard and on March 1, 1916, was transferred in the same capacity to Wilkes-Barre. He was promoted to assistant trainmaster of the Susquehanna division on May 1, 1916, and became trainmaster of the same division on May 15 of the following year. On May 15, 1920, he was detailed to the office of the general manager without change of title. He was serving in that capacity at the time of his recent promotion.

Traffic

D. F. Lindsay has been appointed general western passenger agent of the Lehigh Valley, with headquarters at Chicago, effective February 1, succeeding A. B. Hill, deceased.

G. Williams has been appointed general freight agent of the Denver & Rio Grande, with headquarters at Denver, Colo., succeeding W. M. Lampton whose death was announced in the *Railway Age* of December 31 (page 1184).

C. D. Chancellor, whose promotion to assistant general freight agent of the Central of Georgia was announced in the *Railway Age* of January 21 (page 263), was born at Okolona, Miss., on December 11, 1884, and was educated in the public schools. He entered the employ of the Central of Georgia in 1897 at the age of 12, as a mimeographer in the freight traffic department. He served subsequently in many positions throughout the department, including the following: correspondence mail clerk, tariff mail clerk, tariff index clerk, correspondence file clerk, quotation clerk, rate clerk, executive rate clerk and chief clerk of the rate department. He was serving as chief clerk at the time of his recent promotion.

Engineering, Maintenance of Way and Signaling

C. S. Knapp has been appointed engineer of valuation of the Pullman Company, effective January 1.

Paul Sterling, maintenance engineer of the New York, New Haven & Hartford, Lines West, has been appointed assistant to engineer, maintenance of way with headquarters at New Haven, Conn., effective February 1. **R. L. Pearson**, division engineer of the New Haven and New London divisions, has succeeded Mr. Sterling as maintenance engineer, Lines West. **E. E. Oviatt**, division engineer of the Danbury division and the Central New England, has succeeded Mr. Pearson and **C. D. Perkins** has succeeded Mr. Oviatt.

Obituary

W. J. Moule, assistant comptroller of the Canadian Pacific, died January 28, at Montreal.

James Buckley, general eastern passenger agent of the Erie, died at New York on January 28.

H. G. Haugan, at one time controller of the Chicago, Milwaukee & St. Paul, died on January 31, at Pasadena, Cal. Mr. Haugan retired from active railroad service 10 years ago after 40 consecutive years of service with the St. Paul.